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WESTERN

BLISTER RUST NEWS LETTER

FOR

STATE AND PROJECT LEADERS

By The

Western Office Blister Rust Control

Vol. 2, 1927

Spokane, Washington.

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BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

* * *
Confidential
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U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington.

CHRISTMAS TREE SHIPMENTS FROM WASHINGTON

Observations and investigations which have been carried on in the coast region of Washington by Mr. Felch during this last fall, have revealed the fact that probably at least three hundred cars of Christmas trees were shipped out of the coast region of Washington to all parts of the United States. Each car contains about 3,500 trees, making a total of at least 1,050,000 young evergreen trees that are cut in this region for Christmas trees. Since white pine is scattered over all of the coast region of Washington, there is the possibility that some may be shipped as Christmas trees. In most cases it has been learned that the shippers and transporting agencies have not been aware of the Federal quarantine. Further, most of these shipments are not inspected by a horticultural inspector. Information has been secured that some large shipments are made from Vancouver Island to California points. This is a serious situation, not only from the standpoint of forestry, but it seems to represent grave danger from the standpoint of the distribution of white pine blister rust. Although Douglas fir trees are the ones generally used for this purpose, observations have shown that white pines are used for Christmas tree purposes and consequently it is not beyond expectation that some white pine may be included in these large shipments, although none have been found in the few shipments inspected. All parties concerned, who have been interviewed regarding this matter thus far, have expressed a willingness to cooperate by sending out instructions to their agents and by putting up posters regarding the quarantine. Further investigations of this matter will be made along the lines of examining freight records and also the particular cutting areas to determine whether there are any white pine growing in the particular vicinity. A definite educational campaign regarding this matter will be inaugurated before the next fall shipping season.

DISTRICT 5 EXPERIMENTATION HELPING IN CALIFORNIA

The Forest Experiment Station of District 5 in California is preparing a white and sugar pine type map of all of the forests of the district. This work has been largely completed. This will be an artificial type map based on the timber that is on the area. They are also beginning the preparation of a true type map. This map will be based on the nature and quality of the site of a particular area without regard to the timber that is now on the area. In other words, this map will show what timber can be and should be grown on a particular area under forest management. This work will show the potentiality of an area and will give a true picture of the areas in California which are best suited for the growing of white and sugar pine. These are the areas which should be protected from blister rust, and as a result, this work will be of inestimable value to us in determining the size of the blister rust problem in California.

SIXTH ANNUAL BLISTER RUST CONFERENCE

The sixth annual Blister Rust Conference was held at Portland, Oregon, on December 4th. There was considerably larger attendance this year than for the last two years, indicating the wider interest and attention that is being given this problem. All who attended were vitally interested in the meeting so that very careful attention was given to all of the papers. The following notes cover the principal points of interest.

* * *

The executive secretary stated that $507,000.00 had thus far been appropriated for blister rust work in the West and that probably $160,000.00 would be available for 1927. States in the meantime, while not actually appropriating considerable sums for blister rust work, have, through their forestry, horticultural and agricultural departments contributed large sums in the form of service. Private agencies have taken similar action. The secretary called especial attention to the fact that the moneys spent by state and private agencies during this period exceeded that spent by the Federal government.

* * *

The discussion of control areas from the standpoint of quarantine and of local control areas from the standpoint of eradication was probably the most important matter that was discussed. The basis of the discussion was regarding the need for more research work along the line of growth and yield studies and site studies, in ofder that some definite basis might be established for estimating the values involved at present and in the future in the case of each area which is being classified regarding protection from blister rust. This basic classification, it was agreed, was the duty of the forester. Foresters called attention to the fact that very little of such information was available and that there was no money available for carrying on such research work. As a result the conference asked Congress to appropriate $50,000 for starting this work.

* * *

There was a general feeling at the conference that not enough publicity was being given to the blister rust work. As a result the conference recommended that its executive committee prepare an article reviewing all of the work in the West from its beginning. This article will appear in the January number of the "Timberman".

* * *

Mr. Wyckoff stated that this last year's work had given greater encouragement in the possibility of the success of the work than the work of any previous year had given. He gave two reasons for this. First, the fact that the average cost of eradication had been reduced from $3.38 per acre to $1.26 per acre. Second, that chemical eradication appeared practical in destroying the concentrations of Ribes along streams.

* * *

Extracts from a wire from Mr. Detwiler to the conference:

"The outlook for the successful control of blister rust in the West is brighter than ever before as a result of this year's work. ..... I am confident that the successful application of control will result from following the ten year program. The strength of the program is whole-hearted cooperation of all interested in the future of white pine in the West. Since the Federal government owns approximately half of the white pine acreage, its duty in this problem is possibly greater than that of the states which actually own comparatively small acreage. However, the communities and states are greatly benefitted in wealth by lumbering operations..... I believe that the time has arrived for the states to secure direct appropriations for control reconnaissance, scouting and Ribes eradication on the most favorable sites."

QUARANTINE

Quarantine inspection work was discontinued at Spokane and Pasco, Washington, and Pendleton, Oregon, in early December. All coast points were kept open until Christmas time. Seattle, Washington, is still kept open and the work there will continue throughout the winter. The following violations have been reported, in addition to those formerly reported in the News Letter.

December 9, one white pine from Washington to Montana.

December 11, one white pine from Washington to Nebraska.

December 14, one white pine from Washington to Iowa.

December 14, one white pine from Washington to Nebraska.

December 18, two white pines from Washington to Arizona.

December 20, two white pines from Washington to Illinois.

December 21, two white pines from Washington to North Dakota.

December 22, one white pine, intrastate in Washington.

December 23, one white pine from Washington to Nebraska.

January 4, 12 white pines, intrastate in Washington.

All of these shipments were made by parcel post by private parties. In all cases the contents were not listed on the outside of the package and the package did not bear an inspection tag.

THE CHEMISTRY OF CELL PROTOPLASM

H. R. Offord.

The smallest unit capable of continued independent life is the nucleated cell. One of the fundamental problems of general physiology deals with the nature of the relations existing between cellular structure and the chemical processes of the cell protoplasm. The protoplasm, or living part of the cell, is the key to the life and habits of the individual cell, and, since we are chiefly interested in the death of this protoplasm and its reactions to various toxic agents, we shall discuss the phenomena in that light.

Cell protoplasm is essentially a complex mixture of colloids (Gardukov) which may vary in consistency from that of a colloidal gel to that of a colloidal solution. In this system there occur processes of absorption and alterations of the distribution of water between the colloidal particles and dispersion medium. The living protoplasm then, is continually in the state of flux, under the action of electrolytes and of stimuli of different kinds. As a result of these stimuli mass law relationships are altered in such a way as to allow either synthesis or decomposition to occur. The entire plant structure is consequently very sensitive to external stimuli of any kind, and is capable of reacting in a number of different ways, depending upon the nature of this stimulus. Straub showed the following effect of an electrolyte on cell membrane, viz., the protoplasm of the cell is surrounded by a membrane or surface layer which allows the passage of certain materials, while it prevents others. Nazeli has shown the membrane of the living cell to be self-forming and its permeability may vary and change with life processes. While the cells are resting, for example, it is impermeable to glucose and amino-acids, but when the cell passes into a state of functional activity these substances can pass through the membrane. Clowes shows a relationship between biological and physical theories of emulsions. He says that the cell membrane is a system, a colloidal emulsion of two phases--a watery solution of protein and a lipoid phase. In the resting state of the cell, the membrane consists of an emulsion of protein solution in lipoid, the latter being the continuous phase. In this state, therefore, the membrane will be permeable only to the substances that are lipoid soluble. In the active state of the cell, there is a reversal of the emulsion and the aqueous phase becomes the continuous one. In this case, substances soluble in water will now be able to pass through. In each case, however, we must regard the emulsion membrane as a sieve. The membrane will, of course, be permeable only to those substances which are capable of passing through the "holes" or pores between the dispersed phases.

We can thus regard both the protoplasm cell contents and the cell membrane as a colloidal system and that the cell membrane is a complex emulsion of colloids, the two phases of which are capable of undergoing reversal. This explanation throws some light on the varying results obtained by treatment of a Ribes bush with the same chemical at different periods of the year. It would appear that the most favorable time for the application of water soluble constituents is during the period of the plant's life when physiological activity is at its height. This period occurs early in the growing season. In our experimental work at Berkeley, we are attempting to ascertain what effect temperature, moisture, sunlight and point of application of the chemical has upon the amount of chemical absorbed by the plant.

CHEMICAL ERADICATION

This fall, Mr. Offord shipped about 3,000 specimens of Ribes petiolare, R. lacustre and Grossularia inermis to California for experimental purposes. About half of these were planted in the green house but did not survive. The rest, which were planted on the outside did well, but as a result of the transplanting lost their leaves so that they will be of no use for experimental purposes as planned for this winter, but will provide plenty of material for next winter. It appears that small-rooted plants are much better for transplanting than old crowns or cuttings.

While Mr. Offord was North he spent some time at the Ross Pump Company, Olympia, Washington, and the Pacific Marine Supply Company, Seattle, Washington, investigating power equipment to be tried out next summer in the experimental chemical eradication work.

SAVE YOUR T. R. BOOK COVERS

It is desired at this time to call to the attention of field men the instructions from Mr. W. P. Cox, "Preparation and Use of Government Transportation Requests - New Series", a copy of which was sent to all men receiving transportation requests.

These instructions read in part as follows:

"Books of 10 requests each are provided with two inserts (Form 1029) for use in recording data (reverse side) relating to issue of requests, and these are to be retained (in the book) by the traveler until the book is exhausted or the trip completed when the cover, with or without unused requests, will be surrendered to the Office of Accounts for proper record and disposition."

Care should be exercised to preserve these covers and return same to the disbursing agent for disposal as directed. --Roy Calhoun.

DIARY OF A COMPOSITE DAY IN CALIFORNIA ERADICATION CAMP

R. Lillard.

6:00 A.M. - Drat that gong! But soon up and to the pump to wash. Ice to be broken and water applied, perhaps lightly.

6:15 - Rush to lunch counter in cook shack to beat crowd and make lunch before breakfast. Plenty of bread, jam, jelly, butter, cheese, cold ham, cookies, cake, etc., to put together and wrap up. My crew boss beats me today; he takes 12 sweet pickles and I only 7.

6:30 - Cook rings gong and we all dash to table to grab best cantaloupe halves--that is, all except the few lazybones who just climbed out of bed. Plenty of mush, fried eggs, ham, pears, fried spuds and toast follows. We eat hurriedly but leave the tables quite satisfied. Soon off for plot #17 downstream. Thereafter a 20-minute hike on our dusty, undulating trail.

7:05 - To work. I am string layer. We are working up a nearly dry side creek. Lineman has to climb and crawl through thick alders. Many Ribes, from seedlings to whoppers, so steady work for all.

11:00 - We come to an abrupt, cliff-like rise. Hanging all over the face are enormous R. nevadense. We sally to the task. Checker man arrives and keeps record of live stem feet pulled. K. slips on some moss and sits down on his lunch which is tied to his belt.

12:00 - Have not progressed far, but much pulled. Lay off for lunch. Walk down stream bed 100 yards to water hole and eat. Water O. K. but we take pleasure in kicking out six nice plump bullfrogs. Time for brief snooze.

12:30 - To work again. Warm afternoon; haze in sky, a sign of a forest fire somewhere around the country.

2:00 - Walking over some dry sticks I upset a small yellow-jackets' nest. The crew boss coming behind discovers it. He cries "Hornets! hornets!" Crew rapidly disperses for a time. I get stung on leg and neck; M. gets one on end of nose.

3:15 - Off for camp, breaking way in part through thorny Ceanothus as far as creek path. In camp, go to dam downstream and undress. Quick bath in icy water. J. hits bottom, to his discomfort. We must dive shallow hereafter.

4:20 - I go to office and get my mail. Two letters: one from home (not important) and one from the "Little Girl". She says nothing (as usual) but is having a good time. I have some free minutes and so wash 8 pairs of socks and 1 shirt.

5:00 - Gong rings. General stampede. Food and appetite excellent. Usual Oregon-California argument at table. Interesting if not instructive. After eating, several of us read papers in Mr. Melis's office.

5:30 - Some of us go to the meadow; after yelling furiously for a while we get the rest of the gang out and have an interstate baseball game. It is a close game and several arguments occur as to whether or not T. is tagged out. Referee finally settles them. Oregon has a good fielder. Indeed, keeping the eye open for Ribes is good training for a baseball eye.

Dark - We quit and some of the fellows dress up and drive the mile to Pinecrest Resort to attend a dance that rumor says is going to be there. A few of us build a fire by my tent and write letters upon a rude table. I write my daily to HER. Across the meadow we hear the camp quartet singing at the bosses' campfire, interrupted at times by silence and then loud laughter.

9:15 - Some of us are reading magazines or books. The bunch that went to Pinecrest comes back. As is nearly always the case, the dance is a false alarm; they have stood aroung the front porch a while to see a girl, and then sneaked back here.

9:30 - Time to cut out noise. Most of us in bed. Quiet reigns except for snoring in the next tent.

11:00 - An enraged crew boss, in his nightgown, drives away some resort horses that have browsed too near to his tent, by running after them, shouting and throwing rocks. A groan from the awakened camp, and silence again; for sleep, the restitution of all good hard-working Ribes pullers, has come.

SUSCEPTIBILITY OF INLAND EMPIRE RIBES

Over 2,000 plants of R. petiolare, R. viscosissimum, R. lacustre and G. inermis were tested out in five different localities during this last summer by the Office of Forest Pathology. It was found that there was a decided difference among the species in their susceptibility to aeciospores as compared with their susceptibility to uredinial intensification. Compared with the cultivated black currant, all are evidently low in the former regard. Uredinial intensification and production of the telial stage was so heavy on R. petiolare and G. inermis, particularly on the former, that it is felt that in transmitting infection to the pines they will occupy a position almost comparable to the cultivated black currant.

A TRUE HARD LUCK STORY

W. A. Rockie.

The hard luck story in the Blister Rust News Letter of December reminds me of a real hard luck story.

R. L. (Brick) McLeod, who worked with this office during the field season of 1923 - 24 - 25, was the unfortunate victim. Brick was called to Spokane during the latter part of the summer of 1924 from Camp One on Upper Priest River. He left camp after noon one day on the 12-mile hike to the lake, the nearest point of motive transportation.

Unfortunately, while he still had nine miles to go, he broke his leg midway between the knee and the ankle. However, with true Scotch fortitude, he hopped along the trail on one leg to a box that was beside the trail a short distance ahead, and, with the aid of slats torn from this box, he was able to bind and splint his leg so that he was able to walk the remaining nine miles to the lake, only to find that he could get help only by walking six miles farther to reach the ranger station.

Later, we asked him how he was able to stand it, and he said that his experience in the World War had given him the grit to stand up under such a strain. In fact, he could trace it to an individual experience in which he lost one leg just above the knee. He then got a wooden leg, and it was this one that he broke.

SHOW ON YOUR EXPENSE ACCOUNT THE KIND OF BERTH USED

At the time the present expense account forms were distributed there was also given information as to method of reporting kind of berths occupied when traveling on transportation requests. This is being overlooked in many cases.

As there is no space for this information on these forms, it is suggested that the seat or kind of berth be shown in the space and immediately above the cost of same. --Roy Calhoun.

BLISTER RUST INFECTION ON WHITE-BARK PINE (P. ALBICAULIS)

In the Upper Birkenhead River watershed infection was found this last season by Mr. Lachmund on the white-bark pine (*Pinus albicaulis*) at several points. This is the first record of infection on this species within its natural range. The only other record of infection on this species in North America is the case of the cultivated plant in the arboretum of the University of British Columbia, to which the rust had evidently been transmitted from infection on Ribes nearby.

NOTES

On January 4th, Mr. Wyckoff discussed the white pine blister rust problem in the West, before the Science Club of the Southern Branch of the University of California.

* * *

On December 28, Mr. Putnam gave a paper before the Pathological Section, of the Northwest Scientific Association. His discussion was chiefly concerned with the campaign against the cultivated black currant and the reasons for the general eradication of this plant in all pine growing states.

* * *

On December 29, Mr. Stillinger discussed the possibilities of the eradication of wild Ribes in the white pine timber type of northern Idaho, before the Forestry Section, on the Northwest Scientific Association. Especial emphasis was given to the results thus far obtained in the experimental eradication work and the general Ribes conditions in the white pine timber as indicated from the tabulations of the reconnaissance work that has been done in these areas.

* * *

Mr. Wyckoff attended the Annual Investigative Meeting for District One of the Forest Service. The Forest Service realizes the importance of the blister rust problem and from the demands which we find it necessary to make from them for information, they realize that they must start some studies to answer the questions which the blister rust problem has raised thus far. The time is at hand when predictions of yield and the classification of the white pine sites must be made in order to determine what areas in the Inland Empire must be protected from blister rust. The Western Conference recommended to Congress that the Forest Service be given $50,000 to start some research work along the above line. Such a bill has been introduced into Congress.

* * *

Mr. Benedict has returned to his headquarters at Berkeley, California. He is preparing his plans for next season's work and helping Mr. Offord in devising power equipment to be tried out next season in the experimental chemical eradication work.

* * *

Mr. Kenyon is now headquartered at Berkeley, California. He is working at the District Forest Service Office, the several supervisors' offices and at the Forest Service Experiment Station, collecting and compiling all information available regarding the white pine and sugar pine in California.

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U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington.

OUR MEN COMMENDED FOR AID IN FIRE SUPPRESSION

The following letter has been sent to all of our leaders who, with their subordinates, aided in fire suppression on the Kaniksu National Forest last summer.

January 1, 1927.

Dear Mr. . . .

As Supervisor of the Kaniksu National Forest, I wish to express my appreciation of the excellent spirit of co-operation and unselfish service which characterized your work on the forest this season in assisting us in the suppression of forest fires. It was a piece of work honestly and efficiently done.

I certainly have a lot of admiration for the spirit and grit of the men who bore the heat and burden of the long fight. It was a tough job this season for all of those engaged in the firefighting organization. I almost wonder how some of the men stood up under the strain of fatigue and responsibility that was placed on them, and I only wish there were some more fitting way whereby the Government could better reward public service of so fine a quality.

I know it was discouraging co-operating the way the Blister Rust boys did, and after having put all that they had in brains, energy and physical endurance, to see such losses as occurred on the Kaniksu last summer, but there is a lot of satisfaction in knowing that to a man the Blister Rust and our regular protective organization did the very best that they knew how to do and put all the determination and fighting spirit they had into their job. For anyone outside the Service, it was difficult to tell who were permanent men in the Service and who were co-operating agents, or who were members of the temporary protective organization. It is the spirit that will win and will assure us that future crises will be adequately met.

I am very glad indeed of the privilege of writing you this brief letter of appreciation of your services which I know were given at a considerable sacrifice of your own work. I hope that it will be accepted as coming not only from me alone, but as an official recognition throughout the Forest Service of what you and the Blister Rust boys under your leadership have done to help out in a most serious crisis.

Very sincerely yours,

J. C. WHITHAM, Forest Supervisor, (Kaniksu)
by (s) J. C. Whitham.

THE FIRST CAMP: EVOLUTION OF THE BATH

R. Lillard.

The first camp was located on the north fork of the Tuolumne River, that is, the map called it a "river". Anyhow there was a little more than enough water to drink! This river was the only means for our daily removal of superfluous dirt which took place some distance below camp.

The history of it as a bathing place is noteworthy. The first arrivals had picked up enough small rocks to clear a pool about as big as a blanket and nearly eight inches deep. This was, of course, very, very efficient when a dozen dirt covered Ribes pullers jumped in, each in a hurry and eager for the great privilege of lying down on his stomach in the deepest part of the pool so that at least half of his body might become wet.

So we, the later and more ambitious arrivals, started to construct a small dam a hundred yards further downstream where long ago a lumber mill had been located. Old boards and planks lay all about. What caught our eye was an old log which lay almost straight across the stream and was at the head of a log jam. Every night after dinner some of us went downstream and busied ourselves placing planks on end, leaning them against the log and nailing the upper ends to it with some old nails we had found. Then we fastened slabs over the cracks.

On a certain evening about a week later certain of us enthusiasts were still busy, throwing dirt and stones against the base to stop leaks and hold the boards snug. Some of the fellows stripped, and piled in boulders. Soon the job was done. Then the pool began to fill. Whoo-oo-pee! Slowly the water rose. Would the dam-thing hold? When we turned in rather late that night we were pretty sure it would; the water was only a few inches below the spillway.

Next morning, certain light sleepers calmly announced that the masterpiece of engineering had gone out in the middle of the night with a great crash. Alas! it was so, for we sent someone right down to see. Apparently, our dream child had passed away.

For a week no one did anything about it. Finally several of the fellows, with more energy and faith than the rest of us now, had started on it again. It had washed out under the bottom so they merely put in some more boards, threw in a few tons more of dirt and rocks at the base, drove in a few pounds more of rusty nails, placed a score or more props behind the log, and plugged some of the innumerable small leaks with rubbish! And so they fixed it in due time.

In all the several weeks that we used it, certain sharp rocks remained on the bottom as swimming hazards, but at that we enjoyed pleasant baths. However, slow leaks began to appear and the water level slowly went down; so that--well--we left (camp) a little before the dam did.

ESCAPED RIBES NIGRUM

The following has been reported by Mr. McNearney, agent, East Brookfield, Massachusetts: "I am sending you a few leaves of R. nigrum which I took from escaped bushes. These were found in Southbridge on open land. Last year we removed about 27,000 of these bushes which had escaped. These were found in woods and in pastures contiguous to the original planting in the town of Sturbridge. Others were removed from woods in East Brookfield."

QUARANTINE VIOLATIONS BY MEANS OF AUTOMOBILES AND IN LUGGAGE

Mr. Root submits the following information from an examination of the California records. This makes us wonder what is happening in other regions.

"In going through the reports of the interceptions made at the border stations where inspection of automobiles and luggage is made, I find several violations relative to Quarantines No. 26 and 63. Several, as you will see, are bona fide. There may be some question as to some of the others, regarding lots of 5 needled pine needles coming from Florida. The information is meager. Unless the needles were intact in the bundles showing the 5 needles, I doubt if one could tell whether they came from 5 needle pines. Again there might be a question whether bundles of 5 needled pine needles come under the quarantine. Presumably they do, as they might be a source of danger. I am including everything which has a chance of being blister rust interceptions.

Fort Yuma, California.
Quarantine 63.

Dec. 1	1	lot currants and gooseberries from Missouri.
Dec. 6	1	bunch 5 needled pine needles from Florida.
Dec. 12	1	lot of 5 needled pines from Arkansas.
Dec. 15	1	" " 5 " " " Pennsylvania.
Dec. 30	1	" " 5 " pine branches from Arkansas.

Quarantine 26.

Feb. 23	1	lot of 5 needled pines from Florida.
Mar. 10	1	" " 5 " " " Florida.
Apr. 4	1	" " 5 " pine needles from Florida.
Apr. 16	1	" (20 lbs.) 5 needled pine needles from Florida.
Apr. 29	1	" 5 " " " (pillow) from Ohio.
May 8	1	" 5 " " " from Florida.
May 28	1	" 5 " " " " Florida.

Daggett, California.

July 5 1 lot currant bushes from New York."

"All the above material was destroyed."

QUARANTINE VIOLATIONS INTERCEPTED IN CALIFORNIA

With the excellent quarantine machinery which is in operation the quarantine violations which are found in California are a good index of the effectiveness of our blister rust quarantines. It is interesting to note in the following list for 1926 that all the violations which are reported are shipments by private individuals and practically all of them are by mail. From our own experience and this information, it looks as if our work is effective in educating the nurserymen and express and freight shippers. The big problem which we apparently have not yet solved is the one of shipments by private individuals by parcel post. (Compilation by Root)

Date	From	Material	Via	Disposition
March 6	Arkansas	2 gooseberries	Mail	Destroyed
March ?	Wisconsin	cur. and gb.	?	"
April 8	Georgia	1 pine	Mail	?
April 22	Pennsylvania	1 pine	Express	Destroyed
April 28	Iowa	2 currants	Mail	?
June 12	Iowa	Gooseberry	?	Destroyed
July 9	Iowa	"	Mail	"
July 2	Pennsylvania	1 pine	Express	"
Nov. 3	Missouri	5 gooseberries	Mail	*Destroyed
Dec. 15	Pennsylvania	12 pines	"	Destroyed
Dec. 28	Washington	6 currants	"	?

*Did not carry certificate as requested by Quarantine 63, held for instructions for three weeks and then destroyed.

QUARANTINE INSPECTION

Inspection work at Seattle was continued throughout the month of January. One violation consisting of a shipment of 12 white pines moving intrastate was noted during the month. Mr. Patty and Mr. Felch started inspection work at Portland and Tacoma respectively on about February 12.

Mr. Simcoe has reported a great many shipments of willow cutting being shipped to all parts of the United States. The shipments are being made in violation of Federal Quarantine No. 53 on Account of the Satin Moth.

OVERWINTERING OF RIBES LEAVES

Mr. Goodding reports the following findings as a result of a recent trip to southern Oregon: "On this trip south, G. cruenta was found in the coast range with abundant old and new leaves. This was on the 28th of January. At this time G. menziesii was in flower and beginning to leaf out slightly."

"CURRANT BUSH BEATS RADIO ON 'PICKUP'"

The above is the title of a short article which was sent the writer some weeks ago from New York City, having appeared in the New York American. Some one of a reportorial trend of mind capitalized on the idea of comparing the receptive power of infection of the black currant with the receptive power of the radio. The article in part reads as follows:

"Sacramento, Cal., Dec. 25. - The cultivated English black currant, intermediate host of the white pine blister rust, a serious timber disease, rivals some radio sets in 'pick up' powers --. -- that during a heavy wind the currant bushes are able to pick up spores of the blister rust fungus, 'broadcast' 200 miles away."

Connecting the spread of the blister rust with radio, a live and up to date topic in the popular mind, furnished an excellent medium for a short snappy story.--G. A. Root.

BLACK CURRANT BILL INTRODUCED INTO THE CALIFORNIA LEGISLATURE

For a second time, a bill "declaring the cultivated black currant (Ribes nigrum) a public nuisance and providing for its eradication; - - -" has been put before the people of California. It was recently introduced in the 1927 session of the State legislature. It was first introduced in 1925 and passed this body. It failed, however, to receive the signature of the state executive.

The general opinion now is that the bill will pass the legislature as before and will receive the governor's signature under the new administration, making it a law.--G. A. Root.

A SCALE FOR MEASURING LEAF AREA

In order to have some idea of the infecting power of the different species of Ribes according to the number of the leaves on the plant and the total area of leaf surface of that species, studies were inaugurated two years ago along this line. All of the leaves from several bushes of R. lacustre and R. viscosissimum growing under different conditions were collected and pressed. A linear scale had been prepared for some of the species of Ribes in the East, which, by measuring the distance between the two principal lateral lobes gave the area of the leaf. Checking of this method against planimeter readings indicated that there was considerable error in this method. In the investigation for a better and more accurate method, a circular scale was developed. This scale consists of a piece of celluloid with circles cut on it each a tenth of an inch larger in radius than the other. To use this scale it is placed over a leaf so that the ends of all the lobes are included in a particular circle. The exact area of the leaf was determined by three planimeter readings. This gave an idea of how much leaf surface could be included in a particular circle for a particular species. On each circle was placed the

area of the leaf which this circle would represent when its bounds just circumscribed the lobes of the leaf. In actual practice, the scale is placed over the leaf, and adjusted until a circle is found into which the leaf fits. Then the area of the leaf is read from the number on that circle.

On the basis of 1000 leaves it was determined that a R. lacustre leaf had an area of .616 of the area of the circle and a leaf of R. viscosissimum had .697 of the area of the same circle. Checking the eastern linear method and this circular method against planimeter reading on 31 leaves showed a factor of error in the circular method of plus .0059. The linear scale showed a factor of error of minus .3087. The circle method showed a possible maximum error of plus .0769 and maximum minus error of minus .0947. The linear scale has a maximum plus error of plus .1125 and a maximum minus error of minus .4380.

The following table gives a comparative idea of the area of the circle and the corresponding area for the same circle of leaves of R. lacustre and R. viscosissimum.

Diameter of circle in inches	Area of circle in square inches	R. viscosissimum area in circle of given diameter in square inches	R. lacustre area in circle of given diameter in square inches
.2	.03	.02	.07
.4	.12	.08	.17
.6	.28	.20	.31
.8	.50	.35	.48
1.0	.78	.55	.70
1.2	1.13	.79	.95
1.4	1.54	1.07	1.24
1.6	2.01	1.40	1.56
1.8	2.54	1.77	1.93
2.0	3.1416	2.19	2.34
2.2	3.8	2.65	2.79
2.4	4.52	3.15	3.27
2.6	5.31	3.70	3.79
2.8	6.16	4.29	4.37
3.0	7.07	4.93	4.95
3.2	8.04	5.60	5.59
3.4	9.07	6.32	6.27
3.6	10.18	7.10	6.94
3.8	11.34	7.90	7.74
4.0	12.57	8.76	8.44
4.2	13.85	9.65	9.28
4.4	15.06	10.60	10.06
4.6	16.62	11.59	11.15
4.8	18.10	12.62	12.10
5.0	19.64	13.69	

A NON-INFLAMMABLE CHEMICAL FOR ERADICATION

As a result of the experimental chemical eradication, sodium chlorate, $NaClO_3$, appears to be one of the most satisfactory chemicals which have been found. The chief objection to it is that it is highly inflammable, consequently in spraying it on the Ribes, it considerably increases the possibility of fire. Further experimental work indicates that the addition of ammonium chloride, NH_4Cl, fifteen percent by weight, greatly reduces this inflammability.

INTERESTING THE BOY SCOUTS

Blister rust slides showing damage (both eastern and western) stands of 5 needle pines of various ages, control crews at work, etc., were shown January 14, 1927, before Troop 55, Boy Scouts of the Spokane Area. The entire troop committee were in attendance. The committee is made up of 5 men of the neighborhood who sponsor the troop and look out for its welfare. They are business men and good citizens of the city. The showing was highly successful and much benefit was derived, both by the members of the troop and the committeemen.--Patty and Strong.

A CORRECTION

Mr. Lachmund has called our attention to the fact that the word "experimental" did not occur in his original draft as reported in (1) line 2 in Vol. 1, No. 9 of the News Letter. We are glad to make this correction although the original copy which this office received from the Washington office did contain the word referred to by Mr. Lachmund.

NOTES

Mr. Melis is engaged in mapping all of the areas that have been reconnaissanced and those upon which Ribes eradication has been done since the beginning of this work in the West. The maps which are being used are on a scale of two miles to the inch. They will give us complete up-to-date information upon the progress of these two phases of our work.

* * *

Mr. M. C. Riley, formerly with the Forest Service of District 1, has been transferred to this Office. He will spend part of his time on reconnaissance work and part on eradication.

* * *

Mr. A. H. Glasgow has been appointed as a member of this Office, his appointment being effective February 1. He will specialize in local control.

* * *

During January, Mr. Strong visited the headquarters of the Coeur d'Alene, St. Joe, and Clearwater National Forests, interviewing the Forest Supervisors and associates. The purpose was to obtain all of the available first hand information concerning the possibility of carrying on blister rust control experimental eradication on these forests during the coming summer. He obtained information on timber types, age classes, reproduction, topography, accessibility by roads and trails, availability of pack stock, land ownership status, local markets, and camp sites.

* * *

Mr. Johnson, our State Leader in Montana, is compiling and mapping the reconnaissance work which he and Professor Skeels did last summer on the Cabinet and Kootenai National Forests, and the Stillwater State Forest.

* * *

California, Idaho, and Oregon have a proposed law up for consideration before the legislature granting power to set aside control areas. The State Board of Horticulture of Oregon is also asking for an appropriation of $500 to help enforce the blister rust quarantine.

* * *

Mr. R. E. Myers, agent for the Potlatch Timber Protective Association, went to the Veterans' Hospital at Tacoma on about January the eighth. His operation was successful and he is slowly recovering so that he expects to be back at work about March first.

* * *

Clyde N. Partington, Junior Pathologist in the Office of Forest Pathology, Portland, Oregon, is on leave for a three-month period. He is continuing his studies in forestry and plant pathology at Oregon Agricultural College, and expects to resume his duties about April 1.
--J. S. Boyce.

* * *

It is a very difficult matter to separate western white pine and sugar pine in the seedling and small sapling stage. The Office of Forest Pathology would appreciate any hints from the field men on simple means for separating these two species.--J. S. Boyce.

* * *

An appropriation of $260,000 has been passed by Congress for blister rust work in the West during the ensuing fiscal year.

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Vol. 2. March 15, 1927. No. 3.

BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

* * *
Confidential
* * *

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U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington.

DEATH OF A. T. DAVIDSON

It was with a mixed emotion of surprise and regret that the members of this office read the following article from a Vancouver, B. C., newspaper, February 26, 1927, reporting the sudden death, by accident, of our friend and fellow worker in the field for the control of white pine blister rust in the West:

"Dashed to the pavement at 2:50 P.M. when his automobile crashed into a street car at Willow Street and Broadway, Mr. A. T. Davidson, blister rust evil expert in the service of the Dominion Department of Botany, residing at the Hudson Hotel, met instant death.

"He was driving north on Willow Street and when entering Broadway struck the rear-end of an eastbound car in charge of Motorman S. Docker and Conductor W. R. Davidson. The force of the impact threw the motorist to the street. When he was picked up by ambulance attendants from the T. J. Kearney Service his skull was found terribly fractured. The body was taken in an ambulance to the General Hospital, where his life was pronounced extinct. It was then removed to the city morgue. Coroner W. D. Brydone-Jack was notified and ordered an inquest. Little damage was done to the street car, but the automobile was badly smashed.

"The late Mr. Davidson was a native of Ontario, born thirty years ago, and came to Vancouver four years ago as government expert to combat the rust evil in British Columbia forests. Though he enjoyed indifferent health, he made great progress in his work. As a consequence of his research and reports, the campaign against blister rust has been productive of beneficial results.

"Many of his trips through the province were made in government airplanes, and several months ago he escaped unharmed when a plane fell in English Bay, injuring two airmen.

"The dead man's parents and a brother live in Hamilton, Ontario. They were notified of the accident by Dr. Lyle Telford, who is a relative of the deceased."

Mr. Davidson became associated with us in the blister rust work as a representative of the Canadian Government in 1922. Since that time he has been in charge of all of the blister rust work that has been done in British Columbia by the Canadian Government. Each year he has attended the general blister rust conference which is held in the West, reporting fully the results of all of his investigations. All who have known him have anticipated seeing him at these conferences or meeting and working with him in the field. As a friend as well as a fellow worker, he was above reproach. Although constantly hampered by very poor health and knowing that the chances for improvement in his health were meager, yet he never despaired, or lost his optimistic view of life. All who knew him admired and marveled at his courage and optimism. He was a faithful, sympathetic, and true fellow worker. He was our friend, and we regret his loss.

PRIVATE OWNERS INVESTIGATING THEIR RESIDUAL WHITE PINE STANDS

The research department of the Western Forestry and Conservation Association during the last two years has been making a classification of the private and state owned cut-over lands, in the Potlatch Timber Protective Association. The following is a summary of their findings to date:

"About 47,500 acres of company-owned land and 21,500 acres of state lands were examined. Of the company lands 31 percent of the area has a stand of 114 and better of poles and trees 4 inches D.B.H. and over; 54 percent of the area is fully stocked. Some is straight western white pine land which when logged should produce cut-over land with a few seed trees and advance reproduction, but it is safe to say that with better slash disposal methods probably 75 percent of the whole area would be carrying a residual stand.

"On much of the cut-over land, because of the residual stand left, a second cut of from 20,000 to 25,000 feet can reasonably be expected in 20 to 30 years after logging and this can be increased by leaving more of the small trees even in white pine at probably no actual expense or cost if the doubtful profit in small trees is balanced against what their removal adds to the fire hazard." (West Coast Lumberman, Dec. 15, 1926.)

QUARANTINE

Inspection work was continued during the month of February at Seattle, Washington, by Mr. Simcoe. On March first, the following men started inspection work: Mr. Ganoung at Pendleton, Mr. Johnson at Ogden, and Messrs. Whiting and Glasgow at Spokane.

The following violations have been intercepted since the last news letter:

Feb. 16, one white pine, from Washington to Iowa, via Parcel Post.
Feb. 28, five gooseberries, from Washington to North Dakota, via Parcel post.
March 3, four currants, Washington to Oregon, via Parcel Post by a nursery.
March 7, six currants, intrastate in Washington, via Parcel Post.

As a result of legislative action, the horticultural laws of California, Oregon, Washington, and Idaho have been amended so as to conform to the amendment to the plant quarantine act. Oregon was the only state, as far as is known, to pass legislation which specifically allows for the establishment of control areas as required under Quarantine 63. It appears that the legislation in the other states does not specifically allow for the establishment of such areas, consequently, there may be some question as to whether the particular laws that have been passed are of such a nature as to allow for the establishment of such areas. Apparently, none of these states passed legislation which gives the state police power over violations of federal quarantines going into their particular state.

RIBES NIGRUM - AMPHIBIAN

H. G. Lachmund.

In the West in general, R. nigrum is prone to remain within the confines of its cultivation. Occasionally, it may wander afield, but evidently only very locally, and to a very limited extent, since only three cases of this have been noted so far. In two of these, escape has been accomplished evidently by seed and entirely independent of human agencies. In the third, there was also a possibility that the plants might have developed from pruning debris thrown into a ditch and lodged against the banks below by the waters. This latter hypothesis of escape by means of waste plant material thrown into and carried away by water, has one other bit of substantiating evidence in the West in the case of a patch of black currants noted by J. L. Mielke and myself in 1925 at the ranch of L. D. Loring, some 20 miles north of Ashcroft, British Columbia. Here the plants grew in a dense mass in a small, shallow, fresh water slough about 10 feet wide not far from the house, almost choking the slough for a distance of some 20 feet. As nearly as we could make out, the mass was made up of about 15 large bushes. Inquiry as to their origin led to the information that they had grown there from the pieces of several cultivated plants which had been uprooted from the garden and dumped into the slough with some other debris a number of years before, because of their poor growth and unproductivity. Now, Mrs. Loring stated, an excellent crop of fine, large fruit was secured each year.

Evidently, R. nigrum reacts kindly to rough treatment if it ends up in the water under the proper conditions. Examination above and below the point at which the plant material had been thrown in failed to disclose any more plants. However, had the water been moving in the slough fast enough to carry the parts away, there might have been a considerable distribution along its banks, and on the basis of its occurrence here, it is not impossible that plants of R. nigrum might occasionally become rooted in by this means along the course of any stream having the proper conditions for its establishment. While this might result in instances of plants of this species at wide distances from their sources, it is self-evident that with spread by seed as limited as it is in the West, this must likewise be considered of relatively minor importance in distribution of this species here and the only important factor in this remains shipment for cultivation.

BLISTER RUST EXHIBITS PROHIBITED

Roy Calhoun

On October 18, 1926 a memorandum by Dr. J. F. Martin was sent to each member of this office citing a ruling by the Comptroller General to the effect that "the preparation of exhibits must be specifically authorized by Congress before any expense can be incurred for that purpose".

The Office of Exhibits is the only office in the Department authorized by Congress to prepare exhibits, and, therefore, the word "exhibits" as used in itineraries and expense vouchers to describe this phase of our work is incorrect.

These activities of our work are primarily demonstrations and auditors not familiar are likely to suspend expenses of this kind when called exhibits.

In order to accurately express the different displays used for demonstrating the disease and its control and avoid misunderstandings, designations such as "window demonstration" and "fair demonstration" should be used.

PROMETHEUS UNBOUND
or
WHY CHEMICAL ERADICATORS HAVE CEASED TO SMOKE

Harold R. Offord

The shades of night were settling fast,
As into camp the young man passed.
One eye was black, the other green,
And on his lips a smile obscene
Displayed to those who lounged about
That sundry teeth had fallen out.
One leg was twisted all awry,
A lump festooned his starboard thigh.
With battered face and clothing rent,
With sagging knees, and strength nigh spent,
He sank before the camp-fire glow,
And told this tale in accents low;

Block three--you know where the river winds,
Is hard to reach, and full of blinds
That test the skill and patience, too,
Of the eradication crew.
My clothes were soaked with chlorate spray,
When work was finished for the day
The substance dried by wind and heat,
Prepared the stage for action neat.
And though you'd warned us oft before,
I struck a match; there came a roar;
A puff of smoke that followed fast;
A flame that raked me fore and aft;

The stream! Jump quick! my comrades cried--
And I plunged headlong in the tide.
A blazing comet sank from sight,
To rise again in sorry plight,
With ardor cooled and firm intent
To smoke no more while spraying bent.
--By all the blights of blister rust,
That mixture sure went on a bust.
In future, friends, I take no chance;
Before I smoke, I change my pants!

THE VALUE OF GOOD WILL IN COOPERATION

"Every individual firm or corporation that prospers in the business world to-day must first get the good will of those who contribute to their prosperity. The more good will and consequent co-operation they succeed in getting, the more flourishing becomes the enterprise. Why is it that political candidates display such friendliness just before election?

"How about it? Do we take advantage of all the opportunities afforded us to make good-will contacts, which later might develop into effective co-operation in time of need?" (Extracts from article by H. R. Richards, in "The Bulletin" Vol. XI, No. I, p. 5.)

EFFECT OF EXPOSURE ON RIBES ERADICATION IN NORTHERN IDAHO

C. C. Strong.

The factors affecting Ribes eradication are numerous, many of which are natural consequences of topographic features. To a certain extent, the effect of these factors on Ribes growth is observed to be constant in a given region, whenever similar conditions exist. There are very often local variations on similar sites which cannot be explained.

The various species of Ribes require different conditions for their best development. Some species tolerate much shade while others require almost full light. Some species require much moisture while others have the ability to withstand very dry conditions. In general, the species which tolerate much shade require the most moisture and vice versa. Apparently, there are Ribes, the particular requirements of which make some one species suitable for almost any site.

Experience in Ribes eradication in the white pine areas of north Idaho bears out the belief that direction of exposure is a very important factor directly affecting Ribes, numbers and size. Since moisture conditions largely result from exposure it must be relegated to a lesser important position in its effect on Ribes distribution over large areas. Ribes will flourish somewhat proportionally to the combination of factors most favoring them. Conversely, a combination of factors unfavorable will proportionally limit Ribes growth. Exposure is the underlying factor determining these combinations of favorable or unfavorable conditions.

Acts of God or man which change the state of nature may have a noticeable influence on the operation of the above principles. Destructive agencies may tend to hinder. Constructive acts of man such as management plans, may aid.

From personal observation on many white pine areas of the Inland Empire, the various factors affecting forest growth there have been classified. In this classification, given in the following table, an attempt has been made to place a relative numerical value upon each factor considered, the larger the number the more favorable that factor being to the forest growth of a slope.

Table No. I.

Direction of Exposure	Non-variable Factors						Average Non-variable	Variable Factors					Average Variable	Total Average
	Lay on of Snow	Drying by Prevailing Winds	Drying Effect of Sun's Ray	Warmth Favoring Early Growth	Soil Moisture in Dry Season	Water Run Off		Soil Fertility	Effect of Weather Extremes	Diversity of Species	Exposed Mineral Soil	Volume Growth of all Species		
South	1	1	1	8	1	1	2.17	1	1	1	8	1	2.40	2.27
South West	2	2	2	7	2	2	2.83	2	2	2	7	2	3.00	2.91
South East	3	3	3	6	3	3	3.50	3	3	3	6	3	3.60	3.55
West	4	4	4	5	4	4	4.17	4	4	4	5	4	4.20	4.18
East	5	6	5	4	5	5	5.00	5	5	5	4	5	4.80	4.91
North West	6	5	7	3	6	6	5.50	6	6	6	3	6	5.40	5.45
North East	7	7	6	2	7	7	6.00	7	7	7	2	7	6.00	6.00
North	8	8	8	1	8	8	6.83	8	8	8	1	8	6.60	6.55

A further attempt has been made to classify the various factors into variable and non-variable factors. The weighted averages for each class of factors and also the total weighted average of all factors is shown. This numerical expression is the relative value referred to previously. From this table exposures most favoring forest growth are seen to fall into the following order:

1. North.
2. North East.
3. North West.
4. East.
5. West.
6. South East.
7. South West.
8. South.

In an effort to further substantiate the above order and to determine the order of importance of the various exposures in their favoring Ribes growth, a study was made of the past three seasons eradication data. The number of Ribes pulled, acreage and general exposure were recorded at time of field work. Most of these areas could be classified into some one general exposure. A few of them, however, had all or several slopes or were flat so that data from them were not used.

After grouping blocks or areas according to exposures it was found that the average number of Ribes per acre on each exposure was as follows:

1. North East.....78.0
2. North.....61.0
3. North West.....49.0
4. East.....48.0
5. West.....32.0
6. South East.....31.0
7. South.....23.0
8. South West..... 8.0

Classifying the exposures according to number of Ribes per acre the order of importance is numerically as listed above.

The important and interesting result of these studies is to show that the two classifications are almost identical. The only conclusion which can be made, then, is that direction of exposure is of foremost importance when considering factors affecting Ribes growth on slopes and that forest growth will be affected in like manner. This information should be of great importance to reconnaissance workers in carrying on their field work. The relation between the two classifications is as follows:

Numerical Order of Importance	Exposure Favoring Forest Growth	Exposure Favoring Ribes Growth
1	North	North East
2	North East	North
3	North West	North West
4	East	East
5	West	West
6	South East	South East
7	South West	South
8	South	South West

CHEMICAL ERADICATION

The following is a summary of the chemical eradication investigations carried on during the month of February:

"An examination of Ribes stem that had been immersed in solutions of halogen compounds for 24 hours has been made according to the technique previously worked out. Living and dead stems were so treated and duplicate analyses of each sample gave results which agreed to within half of one percent of each other. $NaClO_3$, NH_4Cl, KBr, and $KBrO_3$ were compared in this manner. Absorption as indicated by the presence of the halogen in the plant tissue occurred as follows: KBr > NH_4Cl > $KBrO_3$ > $NaClO_3$. For each, chemical absorption was greatest in the case of the freshly cut and living stem. These results are being re-checked before any conclusions are drawn.

"Experiments on potted Ribes have been started. $NaClO_3$, NaCl, $KBrO_3$, KBr, NH_4Cl, have been applied to the Ribes according to the following scheme:

1. Stems and upper and lower surface of leaves.
2. Stems and upper surface of leaves.
3. Leaves alone. Upper and lower surface.
4. Stems alone.

"A series of experiments with plants kept in the dark will give a comparison and indicator of the role played by physiological activity in the absorption of these chemicals. Controls will complete this first section of the experimental work."

OUR OUTDOOR WORK HAS AN APPEAL

Dear Sir:

Indoor work does not appeal to me. I am a lover of the great outdoor life. Please send me all information in regard to work with the blister rust. Also send an application blank.

Yours truly,

NOTES

Mr. Raymond H. Bitney, until recently with this office, writes that he is well settled at the Klamath Agency, Oregon. He reports the arrival of a son, eight pounds, on March 10, 1927. Mr. C. R. Patrie, who was formerly with this office, says Mr. Bitney is also located at the Klamath Agency, Oregon.

* * *

Mr. P. E. Melis, with this office for the last two years, has just received an appointment with the Indian Service. He expects to leave soon to take up his new duties as Supervisor of Forests on the Colville Indian reservation. His address will be Nespelem, Washington.

Mr. Putnam spent the week of February 14 to 19 in Missoula, Montana, in conference with Mr. Johnson, our state leader in that state, regarding the reconnaissance work that was done in Montana last season.

* * *

Mr. Wyckoff was in conference with the officials of the State Department of Agriculture of Idaho regarding the black currant campaign in that state, at Boise, Idaho, on February 24th and 25th.

* * *

Mr. Wyckoff discussed the white pine blister rust problem before a meeting of the Northern Rocky Mountain Section of the Society of American Foresters, at Missoula, Montana, on March 7th.

* * *

Mrs. Dow, who has been a stenographer in the office for several months, resigned on March 12th.

* * *

Mr. Strong and Mr. Putnam spent March 8 to 11 at Moscow, Idaho, and Pullman, Washington, interviewing men who are interested in working on eradication or reconnaissance next summer. At each of these places, they gave an illustrated talk on blister rust. They report that their lantern slides and discussion were well received and considerable interest was displayed in the blister rust problem.

* * *

About February first, Mr. Goodding gave an illustrated talk on blister rust before the science classes in the high school at Roseburg, Oregon. On February 7th and 9th, he discussed blister rust before the botany classes in the Oregon Agricultural College and on February 15th, he discussed the same subject before the Biology Club of Oregon Agricultural College. This is an organization consisting of the faculty men in the Botany, Zoology, Bacteriology and Entomology departments.

* * *

Mr. Bedwell spent several days in travel, interviewing the officers of the different protective associations in northern Idaho, regarding further blister rust cooperative work in their particular associations.

* * *

Mr. Myers has fully recovered from his operation and is again on the job.

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Vol. 2. April 15, 1927. No. 4.

BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

* * *
Confidential
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U. S. Department of Agriculture
Western Office of Blister Rust Control
Spokane, Washington.

WHAT BASIS SHALL BE USED TO ESTIMATE ERADICATION COSTS?

S. B. Detwiler

The data on which the following table is based are very inadequate, but it is sufficient to illustrate a point on which we should obtain complete information. The time is near when each blister rust field man must be expert in estimating Ribes eradication costs as part of his routine work. Is it possible to develop "rule of thumb" tables which will give a reliable basis for such estimates?

Relation of Live Stem of Ribes in Feet per Acre to Eradication Costs.

Total Number Feet Ribes Live Stem per Acre	No. Man Hrs. per Acre Required to Eradicate Ribes	Average Total Cost of Ribes Eradication per Acre	Cost of Ribes Eradication on per 100 Feet Live Stem	Cost per 100 Feet Live Stem after Deducting 1.00* Man Hour per Acre for Searching and Walking
100	1.25	$ 0.55	$0.55	$0.11
200	1.48	0.65	0.38	0.105
300	1.60	0.70	0.23	0.087
400	1.70	0.75	0.19	0.0775
500	1.80	0.80	0.16	0.0740
1000	2.40	1.06	0.106	0.0620
2500	4.14	1.82	0.0728	0.0552
5000	6.30	2.77	0.0554	0.0466
10,000	9.28	4.08	0.0408	0.0364
15,000	11.41	5.03	0.0335	0.0306
20,000	13.36	5.88	0.0294	0.0272
25,000	15.07	6.63	0.0265	0.0248
50,000	23.00	10.10	0.0202	0.0193
100,000	37.73	16.60	0.0166	0.0162
1,000,000	283.20	124.60	0.01246	0.01242

* An assumed figure

(Table from a cruise made from data collected at Eau Galle, Wisconsin, by H. J. Ninman, 1925. Labor cost 44 cents per man hours.)

This tabulation raises a number of questions which can be fairly well answered by analysis of the data already collected, if someone will take the necessary time to do the work. Some of these questions are:

What is the cost of uprooting and disposing of the Ribes bushes as compared to the cost of walking over the ground and locating the bushes?

Is the cost of eradicating a hundred feet of Ribes live stem a constant figure, or does it decrease as the number of feet of live stem per acre increases? If the latter, what is the reason that wholesale eradication is cheaper per unit of live stem—is it because each bush requires less effort to eradicate it than where there are fewer bushes, or is it because labor is more continuously and effectively employed where Ribes growth is heaviest?

Is live stem the proper unit for estimating per acre cost of eradication rather than number of bushes? Or is it better to merge these two by develop-

ing a table showing cost per bush arranged according to average number of feet of live stem per bush and total number of bushes per acre? Or is it sufficiently accurate to estimate eradication costs by using merely an average cost-per-bush figure and multiplying by the number of bushes per acre?

What is the effect of eradication types on cost per bush and cost per hundred feet of live stem?

In order to draw out facts, the writer takes the position that the proper unit for estimating costs is feet of live stem, and that eradication types may be disregarded if a table similar to the one herewith presented is developed for the general region. The table, of course, must be based on a large volume of actual eradication costs well distributed over the various eradication types of the region.

PINE INFECTION CONDITIONS IN WESTERN WASHINGTON KNOWN TO DATE

H. N. Putnam

From March 30 to April 4, Goodding and I made a trip through the Olympics and northern Cascades for the purpose primarily of finding pine infection areas.

There were found twelve new locations of pine infection, eight of which were in the Olympics and four in northwestern Washington. On the Olympic Peninsula, pine infection was found wherever an association of white pines and *Ribes bracteosum* was seen. Several locations showed heavy pine infection associated with Ribes other than *R. bracteosum*.

A new southern limit of pine infection was located twenty miles south of the previously known southern limit. This was at the south end of Hoods Canal, in Mason County.

At Chico there were found one hundred infected pines out of two hundred trees examined. Many of the trees had several cankers per tree. On one pine twenty-five cankers were counted.

An interesting find consisted in an infected pine planted on the Sol Duc burn by the Forest Service approximately ten years ago. This location is six miles west of the western edge of Lake Crescent.

Between Sumas and Glacier in Whatcom County was found a large area of second growth white pine. Infection here was well distributed. Probably 10 per cent of the pines were infected. Very few Ribes were found. During the course of two hours scouting by Goodding and me at Kendal, only one *R. sanguineum*, two red currants and two cultivated gooseberries were seen. Pine infection averaged 10 per cent.

At Abbottsford, British Columbia, four miles north of Sumas, a large canker on a planted pine was seen. This had completely girdled the trunk ten inches in diameter. The canker was fully two feet long on the trunk. It originated on 1916 or 1917 wood on a limb and grew into the trunk.

Ribes sanguineum was in flower and at least three quarters leafed out. The fact that pine infection is so wide spread, that aecia are now being dispersed, and that R. sanguineum is collected and carried into areas not known to be infected constitutes an excellent chance for the spread of the rust.

The following table gives in summary form, by years and counties, all pine infection areas found since 1921 to date:

Year Rust Found	Number of Pine Infection Areas by Counties						
	Whatcom	Skagit	Clallam	Jefferson	Kitsap	Mason	Total
1921		1					1
1922	1						1
1923							
1924	1			2			3
1925							
1926			4	3	2		9
1927 to April 15	4		3	2	2	1	12
Total	6	1	7	7	4	1	26

A "Pine Infection Area," as used in this table, is defined as a point at which infected pines were found separated a mile or more from the nearest known pine infection.

"BREVITY IS THE SOUL OF WIT"

Goodding has a sense of humor as is illustrated in the following telegram:

S. N. Wyckoff
618 Realty Bldg., Spokane, Wash.
OKY
Goodding.

COOPERATION WITH NORTH IDAHO PROTECTIVE ASSOCIATIONS FOR 1927

J. L. Bedwell

The membership meetings of the five North Idaho Timber Protective Associations were held in Spokane, Washington, on the 14th and 15th of March. At these meetings the members voted to cooperate another year with the Office of Blister Rust Control in further reconnaissance studies on each association. The following appropriations were made by each association as their share of the expense:

Clearwater Timber Protective Association	$1500.00
Coeur d'Alene Timber Protective Association	$1500.00
Potlatch Timber Protective Association	$1500.00
Pend Oreille Timber Protective Association	$1500.00
Priest Lake Timber Protective Association	$2040.00
Total	$8040.00

This is $2240.00 more than was appropriated by these associations for similar work last summer.

ONE CONCEPTION OF WHITE PINE BLISTER RUST DAMAGE

H. N. Putnam

We ordinarily conceive of damage caused by blister rust as represented by the number or per cent of white pine of a given size killed by blister rust. In the West we know of but few examples where damage is now appreciable. Cheekye and Daisy Lake, British Columbia, represent such areas. At these two places 30 to 90 per cent of the trees have actually been killed. On practically all of the other infection points actual damage at present is negligible.

In order to form a true idea of damage in the younger age classes of white pine, it is necessary to take into account not only the rate of killing but the time factor. For example, in a stand under 20 years of age it is immaterial, from a practical standpoint, whether the trees are killed in 10 years or 60 years. We know that in each case, if there are enough Ribes present, these trees will all be killed before they reach maturity. From Eastern experience and from investigative work in the West, it is evident that blister rust will surely destroy the commercial value of a stand up to 60 years of age before the trees are of commercial size. Unless the time necessary for a white pine stand to reach maturity is taken into consideration in any damage studies, the results of such studies are apt to give a false feeling of security. We already know enough about the action of white pine blister rust to realize that most young stands of white pine as they occur in the West, would be killed out by blister rust before reaching maturity. Or should they not be entirely killed out, a sufficiently large number of the pines will be killed to make the stand valueless from the commercial point of view. It thus appears that the type of figures upon which we give so much weight are of importance only in white pine stands larger than pole size.

To the best of our knowledge, blister rust appeared first in the West in Vancouver, British Columbia, from a shipment of pines from France in 1910. In the 17 years since then, the rust has established itself on Western white pine throughout the Olympic Peninsula, in the northern Puget Sound region, through southwestern British Columbia, and in the western white pine belt from Revelstoke to Nelson, British Columbia. On Ribes the rust has appeared as far south as northwestern Oregon.

If the rust can establish itself so generally in 17 years, it is obvious, if no control measures are used, great damage must result in the 40 to 60 years elapsing before many of the white pine stands in the infected region will be of commercial size.

The results of damage studies to date would thus indicate that unless we practice control measures, very many of the young white pine stands of the West will be destroyed, from the commercial viewpoint, by blister rust before they are large enough to harvest. The exact rate of killing is not of practical importance, since we know from observation and experience this rate of killing will be rapid enough to destroy the value of these stands before they are large enough to cut.

QUARANTINE

Violations have been too numerous to be reported in detail. The following table will give a general idea of the violations that have been intercepted between the period March 7th and April 13th:

Type Shipment	Shipper		Transportation		Violation	
	Nursery	Individual	P. P.	Exp.	State	Federal
Currants and gooseberries	5	7	12	0	7	5
Flowering currant	0	5	5	0	4	1
Pine	0	1	1	0	0	1
Total	5	13	18	0	11	7

Flowering currants, that is, the red flowering currant, which is native to the coast region of Washington and Oregon, is listed separate because it is used as a cut flower and practically all violations which have been observed have been shipments marked as "cut flowers." It can be noted that all violations for this period are by parcel post.

THE PROBLEM OF THE RED FLOWERING CURRANT

Since the coast region of Washington is now passing through the second stage of infection, that is, the white pines are becoming generally infected, and further, since the red flowering currant is proving a very congenial host in the second stages of the disease, the shipment of this red flowering currant as cut flowers presents a very serious situation.

Another angle to this problem is the fact that a great many motorists from Oregon into Washington on Sundays pick flowers of this plant, because of their beauty, and carry them back into Oregon. The State of Oregon is watching the bridges and ferries over the Columbia River in an effort to intercept as many of these parties carrying these plants as possible. Some undoubtedly are transported during the week. A few such cases were intercepted by Oregon inspectors on the 27th of March. Twenty-eight parties were stopped on April 3rd.

CUTTING PLAN OF THE CLEARWATER TIMBER COMPANY

"The Clearwater Timber Company, of Lewiston, Idaho, is now opening up the largest contiguous body of white pine in the state. Plans for cutting call for a 12-inch breast-high diameter limit, and the slash is piled and burned as logging progresses. The company began logging the first part of September in second growth 80 to 100 years old that is cutting better than 40,000 feet per acre, about two-thirds being white pine. Preliminary surveys by the writer indicated that with care in logging, sufficient trees 11 inches in diameter and under would be left to furnish a profitable second cut in 35 years, the date when the company, for special reasons, would want to cut again. If the losses in these residual stands are as light as they have been in the stands studied elsewhere, the predicted cut in 35 years is around 12,000 feet, about 30 per cent of which would be white pine." (Miller in West Coast Lumberman, December 15, 1926)

BLISTER RUST ERADICATION

Anonymous

Oh, gather around and listen
To a tale I have to tell
Of a day of toil on Lamb Creek
Where the sun was hot as H--l.

Five men with sweaty faces
And backs up to the sun
Were pulling gooseberry bushes
And cursing every one.

Their foreman stood behind them
With notebook in his hand,
To check the ones they overlooked
And urge on every man.

With him was his assistant
Who helped him with his work
To keep each man a-moving
Not one was seen to shirk.

The day wore on till four o'clock;
The foreman stretched and sighed,
And gazed upon the work just done
With not a little pride.

Back to camp they made their way,
Those seven weary men.
They'd earned their pay another day,
And now could rest again.

A CORRECTION

The article "Long Distance Spread of Blister Rust from White Pine to Ribes" in News Letter Vol. 1, No. 9, under "Penticton, B. C." infection should be reported "Absent" instead of "Present" in 1926.

"CHICKENS WILL COME HOME TO ROOST"

The following telegram reminds us of this old saying. We congratulate the recipient:

Roy Calhoun
618 Realty Bldg., Spokane, Wash.
Reference your telegram dated fifteenth kids have been forwarded general accountancy office.

Avery.

DEATH PAVES WAY FOR REMOVAL OF BLACK CURRANTS

G. A. Root

The last of the "hold outs" in Nevada County is no more. After a lapse of two years, during which time firm refusals always accompanied our requests for removal of three black currant bushes, the Grim Reaper finally took the owner, an old English lady. Harboring a deep sentiment for these bushes, grown from seed brought from England many years ago, the old lady would keep her bushes. Even the pleadings of her son-in-law (by the way, a State Forest Ranger) proved of no avail.

The death of the old lady was made known when the writer went to interview her with the intent of getting some black currant cuttings for the experimental garden in Berkeley. The son-in-law at that time gave consent for removal of the bushes.

We do not mind some "breaks" which aid us in removing black currants, but we do not want Death as an ally. We wish the old lady could have lived many more years, yea, and even enjoyed her black currants for a while. The bushes were on the decline, and it would have been only a short time before they would have succumbed.

WHITE PINE PRICES

The following table of prices for the last seven years for different species of lumber cut in the Inland Empire will be of interest to blister rust workers. The prices are f.o.b. the mill:

Year	W. P.	Y. P.	Spruce	Fir & Larch	W. F.	Cedar
1926	37.76	26.59	23.73	17.99	19.09	18.51
1925	37.37	29.28	24.28	19.70	20.16	21.64
1924	39.20	29.33	25.53	19.84	22.62	22.39
1923	48.85	35.59	30.67	22.56	24.72	23.57
1922	44.53	27.89	21.32	17.21	16.93	16.15
1921	44.77	28.74	19.40	14.29	15.42	15.49
1920	56.05	26.97	45.27	33.54	38.59	36.42

(From "The Bulletin," Vol. II, No. 3, 1927)

NOTES

Mr. Kenyon reports that he has completed the sugar pine type maps for the National Forest of California except for the Plumas National Forest.

* * *

Mr. Putnam spent the 21st of March at St. Maries, Idaho, in conference with the Supervisor regarding reconnaissance work on the St. Joe National Forest during this next summer. While there, he spoke before the Chamber of Commerce.

* * *

Mr. Goodding and Mr. Putnam were scouting on the coast region of Washington the 29th to the 31st of March. Considerable pine infection was found, indicating that the rust is becoming generally established on the pine in the coast region of Washington.

* * *

Mr. Melis has received his appointment with the Indian Service, resigning from this office on the 17th of March. We wish him the best of success in his new work.

* * *

Mr. Bedwell made trips during the month to Coeur d'Alene, Sandpoint, Orofino and Lewiston, Idaho, discussing with the officers of the Fire Protective Associations plans for further work in their particular associations.

* * *

Mr. Wyckoff and Mr. Bedwell attended the meeting of the North Idaho Forestry Association at Spokane on the 14th and 15th of March. They reported the progress in reconnaissance in blister rust control work on the associations. All associations voted to continue their cooperation.

* * *

During March, Mr. Benedict and Mr. Kenyon made two trips to the mountains to obtain dormant Ribes material for Mr. Offord. They failed both times because the Ribes were all leafed out on the south sides of the mountains and were covered with snow on the north sides. As usual, California is different from other countries.

* * *

Mr. Edmunds was appointed a member of this office on the 15th of March. He is aiding in the inspection work at Portland.

* * *

On the 22nd of March, Mr. Root discussed blister rust before 25 inspectors of the Office of the Horticultural Commissioner of Los Angeles County. On the 23rd of March, he gave an illustrated talk on blister rust before the biology classes of the Chaffey Junior High and the Junior College of Ontario, California.

* * *

Miss Alice M. Fellows and Miss Selma K. Millick were added to our clerical force and received their appointments effective the 25th and the 21st of March respectively.

* * *

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BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

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U. S. Department of Agriculture
Western Office of Blister Rust Control
Spokane, Washington.

ECOLOGY AGAIN

W. A. Rockie

The writer went to the region of Santa, Idaho, the last week of April to gather 400 dormant Ribes bushes for chemical eradication laboratory studies. The results of the trip were a failure so far as the intended purpose was concerned, for the Ribes were no longer dormant. Ecologically, some new information was obtained.

Ribes of all species had burst their buds in the valleys, and on the slopes. We climbed to several summits of about 4000 feet elevation, finding a general snow mantle of from 2 to 5 feet, and the Ribes all out in leaf. If the snow was shallow enough for the tips of the bushes to be showing, they were in leaf. Even the basal portion of the bush, which was beneath old snow, was out in leaf.

It appears that the buds may burst just as the tip of the bush comes out of the snow, but present data is too meager to make any statement to that effect.

Grossularia inermis, R. viscosissimum and R. lacustre were found with the basal parts of the bush in the remaining winter snow, but R. petiolare was not found under like conditions. The high flood waters had washed away the snow mantle which might otherwise still have been found around the lower portions of these bushes.

Ribes viscosissimum was found leaved out up to the region where the general snow passed 2 feet in depth, but none were found beyond that point. They were probably still completely buried in the snow, which in places was 4 and even 5 feet deep.

Whether this condition is usual, is not known. It may be due to the present abnormally late year, indicated by the late presence of winter snow on ground which is usually bared in March. It may also be due to the fact that the ground in this region was not frozen during the past winter. Further observations and records will be necessary to know just what the facts may be.

The following statements may be made.

1. The stage of leaving-out of Ribes appears almost identical on all sites at a given elevation. Site appears to be a very minor factor.
2. The stage of leaving-out varies more consistently with the altitude than with the site.
3. The presence or absence of snow at a given point appears to cause practically no variation in the time of leaving-out.

NOTES ON CHEMICAL ERADICATION

H. R. Offord

Experimental work at Berkeley has been temporarily suspended until Mr. d'Urbal steps into the laboratory next month to finish a series of root analyses of Ribes plants that have been treated with various chemicals and were then placed under different conditions of light and moisture. The investigations of the past winter bring wider consideration to the variance in action of chlorates when the Ribes are placed under different light and moisture conditions.

A short trip into the Stanislaus eradication area was made prior to departure for the north. Some early season applications of chlorate were made on Grossularia roezli and R. cereum.

The chemical was applied to the soil on Ribes at Leland Meadows which were not yet in leaf due to the lateness of the season.

Work on the development of our power sprayers is under way. Two firms on the coast are each building a portable power unit according to our specifications, and it is planned to make a field test of this equipment early in July. If tests are satisfactory they will be turned over to the chemical eradication crew for their work in R. petiolare areas.

CHEEKYE PLOT NOTES

M. C. Riley

The work on the Cheekye Plot this spring was confined to re-eradication of all Ribes on the area as well as a Ribes count on a strip one chain wide around the outside of the area and the re-eradication of Ribes bracteosum on Cheekye Creek and Lake Alice Creek.

The data taken is still in field form but some information regarding the plot itself is available at this time.

On the Cheekye Plot area, there were 1572 bushes pulled. All of the bushes were R. sanguineum with the exception of two R. lacustre. Of the total of 1572 bushes pulled, seven bushes were of 1925 germination, 45 of 1926 germination and 1520 were of 1927 germination.

All except 348 of these bushes were found along an old railroad cut which was approximately 4 feet deep. This area was 80 feet long and 20 feet wide. Being of rather recent construction there was no duff present on the banks and only about one inch of dead Alnus and Salix leaves in the bottom. The remains of a large number of old bushes were found hanging in the trees on this area. A recheck was made three days later and 47 small 1927 seedlings were found scattered over the area. 99% of the bushes on this railroad cut were of 1927 germination and

they averaged .2 of a foot high. An idea of the occurrence may be obtained when it is stated that 170 of these bushes were pulled from an area only 4 feet in diameter.

Ninety-five per cent of the bushes found on the plot were under small dead trees or along the side of old logs which could have furnished bird rests. A very small number were found directly under old logs where the seeds must have been buried by rodents.

At best 95% of the bushes were found on the area which had been either unburned or only partly burned. In burned areas the bushes were all individuals and were very widely scattered on the east half of the plot. Only about 20 bushes were found on the entire west half of the plot. No bushes older than 1925 germination were found on the plot.

An area one chain wide around the outside of the original plot was also examined and the bushes were located as has been done in previous years. The following table gives the location by quadrants and by species before and after the fire for this outside area.

Ribes On One Chain Strips Outside Circumference
Before and After Fire.

Quadrant	R. sanguineum		R. lacustre		G. divaracata	
	Before Fire	After Fire	Before Fire	After Fire	Before Fire	After Fire
NE	436	163	58	16	1	0
NW	18	1	18	2		0
SE	66	9	6	1		0
SW	3	1	11	3	4	0
Total	523	174	93	22	5	0

Practically all Ribes on the outside strips were found where the area was either unburned or the duff was only partly burned. Usually these bushes were in small green patches in the area classed as partly burned.

No seedlings were found under old bushes, either those unburned or those with only the roots left after the fire.

Ribes sanguineum flowers the second year but no flowers were seen on this years growth. Whether or not it flowers seems to be decided by the size of the bush. All bushes 2 feet or more high were flowering with one exception and only 4 which were less than 2 feet high were flowering. This applies to a total of 63 flowering bushes.

A casual observation gives the impression that practically all of the pines planted in 1926 are still alive. No blister rust was found on any of these pines and no Ribes had been infected up to May 13.

PINE INFECTION IN SUMAS, KENDALL, MAPLE FALLS, WASHINGTON REGION

A cursory inspection for pine infection was made from Kendall to Sumas on April 28 by Putnam, Goodding, Riley and Stillinger. This valley is a broad flat valley between steep mountains extending from Sumas to Maple Falls, Washington. The general direction of the valley is south and southeast. White pine is generally distributed over the valley, in places amounting to 20% of the stand. The trees vary from seedlings to trees 15 feet tall. Indications are that the valley is generally infected, since blister rust was found wherever inspections were made. Infections found were generally of 1921 or 1922 origin. Of the infections found about half were trunk infections. Very few incipients were found, most of the infection being in the aecial stage and fruiting for the first time. Two cankers were found which had fruited once before.

Ribes sanguineum was the only currant found generally but sparingly distributed over the area. One small patch of R. bracteosum was found along a stream. Dense patches of G. divaracata and R. lacustre occur for a mile along a stream. Along one edge of the valley Goodding also found one bush of R. laxiflorum.

There is very little settlement in the valley and as far as is known only two plantings of black currants were eradicated in the valley in 1922, about one-half mile NW of the dense mass of the Ribes found along the little stream. About 30 black currants were eradicated, but none of them were found infected. The valley was scouted in 1922 and again in 1924. Two incipients were found in 1924 out of 200 trees inspected. Evidently, through the aid of R. sanguineum, the rust is infecting the pines quite rapidly since the initial infections evidently occurred about 1921. It is estimated that about 10 per cent of the trees are now infected.

AN ECHO FROM THE WOODS

"Well I have been busy. There are several things that I do not know about logging and even like many others before me I find that they require quite a bit of my time. I have been getting up at 4:30 A.M., all winter. Oh boy that was hard to take but I am used to it now. We are certainly working through big stuff and we did not shut down even for a day all winter, logged right through. It has been a snow shoveling chance for the past few months. All of the work is contract and done by horses.

"I am still preaching blister rust to the ungodly and I believe the harvest will be bountiful, so although that bunch of coots have forgotten my existence, I am still trying to help the cause along."
(From a recent letter of J. R. Rodner who is now in the employ of the Blackwell Lumber Company, Emida, Idaho.)

STERLING, B. C., AREA

This area is about four miles north and six miles west of Sumas, Washington. It was discovered in 1922. A large planting of black currants probably 100 thrifty bushes were located on the southwest edge of an area of young white pine varying from seedlings to trees 25 feet tall. The white pine area is about 200 yards square extending in a northeasterly direction from the black currant planting. Damage is now showing up in good shape, the younger trees dying and many flags occurring in the larger trees. It was very difficult to find a white pine tree that was not infected. Two years ago the black currants were eradicated. Evidently as a result infection of pine was stopped since no incipients were found. With the exception of one large bush of R. sanguineum, no other Ribes were found on the plot. Within ten years nearly all of the white pine in this area will be killed. This is the best illustration of the destructiveness of blister rust, with the exception of Daisy Lake, that has yet been found. The situation is even more impressive than that at Daisy Lake and represents a more normal development of blister rust. The importance of the black currant in this case is very self-evident.

BRUSH DISPOSAL

R. E. Myers

The remarks of E. T. Allen at the last Western Conservation Conference opened a field for thoughton that much cussed and discussed problem of slash disposal.

The plan in brief outline is: Leave the slash untouched after logging. Invest the money which would be expended for piling and burning. Spend each year the money derived for intensified patrol on those areas until the hazard is reduced to normal fire hazard for areas of similar cover type.

Application of the plan to a hypothetical area in a northern Idaho white pine region in a table appended, shows the results from the financial side.

Effort was made to use conservative figures but no attempt was made to apply them to any specific area. The ratio will remain the same between the two contrasted plans regardless of local variations.

The following table shows the method of comparison on the hypothetical white pine area:

One acre yield - BM. 6000 Feet.
Cost of piling and burning brush per M. $1.00
" " " " " " " acre 6.00

Rate of interest 5% compounded annually.
Length of hazardous period. 10 years.*
Cost of normal patrol when brush is piled and burned, 10¢ per acre, (per year.)

The comparative figures in the following table are worked out on the basis of the figures mentioned above and show in a tabular form the results over a ten year period.

Pile and Burn Brush	DEBIT	CREDIT	Intensive Patrol	DEBIT	CREDIT
Initial cost of piling and burning on average acre.	$ 6.00		Capital invested at beginning of 10 year period.	$6.00	$
Compound interest ten years $6.00 at 5%	3.77		Compound interest earnings @ 5% on $6.00 if left intact ten years.	3.77	
Earnings on 10¢ per acre per year normal protection cost at 5% for ten years.	1.32		Annual patrol cost 30¢ per year per acre 10 years.	3.00	
			Credit $6.00 at end of 10 years capital intact		6.00
			Credit $3.00 which is expended from earnings on capital		3.00
Total cost per acre 10 years.	11.09		Total cost per acre 10 years net.	3.77	

Annual Cost Per Acre

Pile and burn brush - $1.11
Intensive patrol, brush untouched - - - - - - - - - - - - - - - - 0.38**
Net gain over piling and burning- - - - - - - - - - - - - - - - - $0.73 per acre per year.

Thus under this plan three times as intensive patrol per acre can be given and yet a saving of six dollars made to the owner. Why not give more intensive protection and keep the men occupied in their territory pulling Ribes? This would give double value for monies expended. If there is pine on the area worth protecting, the cost for patrol could be increased a little, additional men added, and the Ribes eradicated at a much lower figure than normally.

**38¢ used because if earnings on $6.00 were left intact the return at the end of a ten year period would amount to $3.77 per acre. 30¢ per year would actually be expended.

*Purely arbitrary, for the sake of convenience in compilations.

TRANSPORTATION REQUESTS NOT ISSUED IN SPOKANE

Roy Calhoun

Orders for transportation requests are frequently sent to the Spokane Office with the expectation that we will send them out immediately. Supplies of these are also requested for the latter part of June with expectation of using same all summer. Transportation requests are issued by the Bureau in Washington and orders for same should be turned in well in advance of date required to get them on time and obviate the necessity of wiring for same.

Field men should also bear in mind that a new fiscal year is born on July one of each year and that expenditures before July one and those after that date are chargeable to different funds. Therefore, a supply of transportation requests ordered for use in the latter part of June is no good for the period subsequent to July one. To summarize, order only as many transportation requests as you need in plenty of time to get them for use as needed.

QUARANTINE

Inspection work was discontinued at Ogden, Utah on the 27th of March, at Pendleton and Portland, Oregon and Pocatello, Idaho on the 13th of May. Inspectors are still working at Spokane, Washington and Seattle, Washington. During the period April 13 to May 17, 17 violations were intercepted, 9 of which were Federal and 8 were state. Of these violations 12 were shipments of red flowering currants. Thirteen of the violations were by parcel post and 4 were by express.

OBSERVATIONS ON INTERSTATE BRIDGE AT PORTLAND, OREGON.

During the flowering period of the red flowering currant, *Ribes sanguineum*, many motorists collect specimens of this plant, especially on Sundays, and carry them home across the interstate bridge at Portland, Oregon. During the period of March 27 to May 1 an inspector has been stationed at the bridge in order to determine the extent of this traffic, and, acting under State of Oregon authority, has seized the plants in each case where he has observed them. The following violations have been observed on the dates given:

March 27	18
April 3	27
April 10	34
April 17	24
April 24	37
May 1	2

NOTES

Mr. Lachmund, in charge of blister rust investigations in the West, for the Office of Forest Pathology, passed through Spokane on the 25th of April on his way East. He will make stops along the way at different places where the Office of Forest Pathology is carrying on investigative work; will spend considerable time in Washington, D. C; inspect the areas infected with blister rust in the East; and carry on some investigational work of the disease under eastern conditions along the same lines as are being followed here in the West. He will return West about the first of July.

* * *

Mr. Clyde Partington, who is in charge of the investigative work for the Office of Forest Pathology during the absence of Mr. Lachmund, spent the last part of April collecting aecial material at Daisy Lake, B. C., for use in the dry belt of British Columbia for experimental inoculation studies on the Ribes of that region. He is assisted by Mr. Mielke and Mr. Lloyd.

* * *

Messrs. Riley, Whiting and Johnson returned from their trip to Cheekye, B. C. on the 14th of May. They spent the period of April 28 to May 13 re-eradicating and taking data on the experimental plot at Cheekye.

* * *

"Forest Conservation and White Pine Blister Rust" was the subject of a talk by Mr. Strong on the 15th of May, given to about 25 women of Spokane who are making a study of National problems. He illustrated his talk with lantern slides showing the work of the Forest Service and the Office of Blister Rust Control. He was assisted by Mr. Glasgow.

* * *

Mr. Putnam has been relieved of the reconnaissance on Federal lands in Idaho after July so that he may give all of his time to a survey of the blister rust conditions on the coast region of Washington. Mr. Bedwell has assumed the direction of all reconnaissance work in Idaho, with Mr. Riley assisting him.

* * *

On the 22nd of April Mr. Strong gave a talk to a group of 16 manual training instructors of the Spokane city schools. His talk was illustrated by a series of slides on white pine blister rust. He was assisted by Mr. Geil.

* * *

On the 3rd of May a lecture on the profession of forestry was given to a vocational group of over 100 boys of Lewis and Clark High School, Spokane, by Mr. Strong. He illustrated his talk with a set of slides on Forest Management which were provided by the Forest Service, as well as a series on blister rust.

Mr. Benedict reports from California that he has his plans all made and men selected for his eradication project in California this summer, and that work started on May 16th.

* * *

Mr. Wyckoff and Mr. Strong were in conference with Mr. McHarg, Supervisor of the Coeur d'Alene Forest, on the 29th of April making final arrangements for carrying on the experimental eradication work in Idaho at the Honeysuckle Ranger Station in this forest.

* * *

Mr. Root reports that he has set up a permanent blister rust exhibit in the museum of the California Academy of Science in San Francisco. During the American Forestry Week, Mr. Root sent circular letters regarding blister rust, to all high schools and junior colleges in California.

* * *

Messrs. Felch, Ganoung and Peterson started black currant eradication in Spokane on the 16th of May.

* * *

Mr. Dickey, Supervisor of Horticulture, of the State Department of Agriculture of Montana, spent the period of April 30 to May 7 inspecting blister rust conditions in British Columbia.

* * *

The Executive Committee of the Western Blister Rust Conference, held a meeting in Portland on April 19. Plans for the field work this summer were examined and approved. Mr. Detwiler and Mr. Wyckoff attended the meeting.

* * *

Mr. Wyckoff spent the 25th of April at Boise, Idaho, making arrangements with the State Department of Agriculture for starting the rechecking of the counties in northern Idaho for black currants. This work was started on the second of May.

* * *

On the 11th and 12th of May Mr. Wyckoff and Mr. Offord were at Olympia and Seattle in conference with two separate companies, each of which has its mechanical expert making a special apparatus for trial in chemical eradication.

* * *

Messrs. Putnam, Riley, Johnson, Goodding, Root, G. Whiting and Stillinger left Spokane on the 27th of April for an examination of blister rust conditions in western Washington, and British Columbia. While at Cheekye, additional work was done on the experimental plot located there.

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BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

* * *
Confidential
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U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington

OBSERVATIONS ON G. IRRIGUA

S. N. Wyckoff

It has been our common understanding that to secure the control of blister rust in the white pine type of north Idaho, we should have to deal almost exclusively with four native species of Ribes, R. lacustre, R. viscosissimum, R. petiolare and G. inermis. In many localities this is true. But a recent trip into the valley of the St. Maries River has convinced me that at least in that vicinity we shall go astray if we fail to take due cognizance of G. irrigua.

G. irrigua is often confused with G. inermis. In fact, the writer has been the recipient of many dark looks because of his efforts to present to the western force a series of distinguishing vegetative characteristics. G. irrigua is, in the St. Maries River Valley at least, primarily a rock slide species, and there attains its greatest abundance. When growing on open talus, its leaves are a much duller green and thicker than those of G. inermis. But when, not uncommonly, G. irrigua grows in a habitat similar to G. inermis it often resembles the more pubescent forms of the later species. The final distinguishing characteristics can be found only in the flowers. The stamens of G. inermis are at least twice as long as the petals, while those of G. irrigua are only slightly longer.

Where does G. irrigua fit into our Ribes eradication picture? It often occurs in considerable profusion in the rock slides directly above the Stream Type. Should it prove to be a congenial host for blister rust, it will be in a strategic position to cause heavy damage to pine. Due to its liking for rocks, it will probably prove difficult to eradicate by hand.

Our Ribes eradication force has as yet had no opportunity to do its stuff on this species. It is still in the hands of the reconnaissance men. A reconnaissance picture of any area containing G. irrigua will not be complete unless this species appears in its proper place.

I should like to suggest that gooseberry bushes growing on rock slides be not called G. inermis unless you are sure that you are right. If in doubt, send in a goodly specimen with fruits or flowers to the Spokane office. Give location and notes on habitat.

SNOWED IN IN BLISTER RUST ERADICATION CAMP

Mr. Benedict reports on the 21st of May that "The blister rust eradication camp in 'Sunny California' has been snowed in for the past day and a half. Three inches of wet snow fell the afternoon and evening of May 20. This was followed by a hard freeze and we shivered under twelve blankets apiece. A heavy overcast sky and continued cold gives promise of additional snow before another day has passed. Nine rousing cheers for the land of eternal sunshine."

THE CHEEKYE TRIP

L. N. Goodding

"It is always fair weather when good fellows get together"--sometimes. So it proved when most of the "old timers" in western blister rust work got together at Cheekye, B. C., early in May. Posey and Wyckoff were missing and their absence had to be made up with several of the rising generation in blister rust. Those present were: H. N. Putnam, mighty man of affairs; C. R. Stillinger, photographer, general counselor and food consumer; George A. Root, who came to annex Canada to California; Chas. Johnson, upholder of the Montana blister rust flag and the prowess of the Scandinavian Peninsula ; Leslie N. Goodding, web-footer by acclimation--all these of the Old Guard; Mr. Edward Dickey, Horticultural Commissioner from Montana and mighty Democrat; M. C. Riley, O'Riley for short; and George Whiting, the prize beauty of the crowd.

The ingathering was not simultaneous. Putnam, Riley and Stillinger met Goodding at Seattle, April 28, and Lincoln's poor cousin conducted them to the Kendall infection area between Glacier and Sumas. Here all made observations on the general infection on the white pines and decided to hang Ribes sanguineum on circumstantial evidence brought out in the preliminary hearing--or in this case, seeing. From Kendall toward Sumas for ten miles or more, infection is found quite general on pines and it takes a great stretch of the imagination to lay the blame on any other Ribes than Ribes sanguineum.

After passing through Sumas, the party went to the Hill-Tout place, stopping in route to take pictures of some heavily infected pines in yards. On the Hill-Tout place, the pines are still growing luxuriously, in spite of huge cankers on limbs and trunks. Two trunk cankers were observed which were two feet or more in length and practically around the eight or ten inch trunks. Here ignorance seems to be bliss. The trees are doomed, and neither men nor trees appear to realize it.

A blister rust slaughter-field was visited at Sperling. Hundreds of young trees are growing next to a field where there was formerly a planting of cultivated black currants. The currants have been removed, but several years too late to save the pines. Practically every pine tree for half a mile from the place where the black currants used to be has a large canker at its base. Most of them show the stimulated branch growth resulting in the dense or almost witch-broom effect at their bases. Many are dead, and many are dying. All are on the road to the cemetery. Those of us who have learned to love white pines, on seeing such a place, have the same creepy feeling we experience on attending the funeral of a friend.

On April 30, Mr. Dickey joined the party at Vancouver and all proceeded to Squamish by boat and from there to Cheekye by stage.

May 1--Sunday--it rained, but Putnam, the tyrant, put everybody to work. In the early afternoon, however, the rain had soaked so much of the nicotine out of him that he returned to camp in extreme discomfort. Some of the others were already toasting their shins by the fire and the remaining ones soon drifted in.

Johnson, Root, and Whiting joined the party early in the week and with the advent of good weather, the work started in earnest. The aims of the work may be put under these heads:

1st. To relocate the boundary stakes of the Cheekye plot, which were established in 1923. Many of these had been burned in a fire which swept the plot in 1925.

2nd. To eradicate the Ribes either missed on previous eradications, or germinated since the fire, and to take ecological notes on the same.

3rd. To check over the areas of Ribes bracteosum on Cheekye and Alice Creeks which were eradicated in 1926, remove any sprouts, shoots, seedlings, or missed bushes and take ecological notes on the areas.

4th. To re-establish the chain-wide plots bounding the circumference of the main Cheekye plot and take ecological notes on all the Ribes.

5th. To make blister rust observations throughout the region.

To make clear this program in the minds of those who have not visited Cheekye, it may be well to give a little explanation of the situation. In 1923 a plot was chosen at Cheekye for observations on the spread of blister rust from Ribes to pines. A circular area 38 chains across was surveyed and staked. All Ribes were eradicated and pines were planted on eight of the radii. A strip a chain wide outside the main plot and extending around the entire circumference was staked out and notes taken on all the Ribes. In 1925, fire swept through the plot and destroyed most of the young pines in the main plot and many of the Ribes on the border plots. In 1926 the pines were replanted. For the intimate history of the project, you are referred to the annual reports of the western office of previous years.

To draw any definite conclusions at this time from the notes taken on Ribes during this trip would be premature. Some of the observations, however, may be in order. Some predictions had been made before we reached the plot. Some said that there would be no Ribes on the main plot and some said that there would be thousands to the acre. Neither of these proved entirely correct. Over much of the plot there was no reproduction of Ribes. A very few single plants were found widely scattered. Wherever the burn was at all severe there were no seedlings. But in places where there had been abundant Ribes growth prior to the eradication and where the burn was not severe, young plants were coming

in to the tune of 200 or 300 plants, in places, to the square yard. Many of these were in bunches as though they had come up from a single berry. In two places, along an old logging road grade, fruits had evidently been buried and had survived a severe burn. There seemed to be no reproduction of anything but Ribes sanguineum on the main plot, in spite of the fact that Ribes lacustre had been abundant on parts of it prior to eradication. The survival of R. lacustre, even on the circumference plots where there had been no eradication was very low. Here many R. sanguineum bushes had sprouted from crowns but many had been killed outright.

The Ribes bracteosum eradication on Cheekye and Alice Creeks had been well done. A few sprouts from old stems, a very few missed bushes, and a few seedlings were found. The last were found in the humus as well as in the sand.

An interesting point was noted which has no connection with blister rust control. The roots of one Ribes bracteosum bush were observed to bear abundant nodules resembling those on alfalfa or clover. A microscopic examination made after the roots were already badly dried revealed abundant bacteria apparently of the nitrogen fixing type.

All of the party except Putnam and Goodding paid a visit to Daisy Lake to study pine infections at that point and to hear some of Shorty Knight's breezy stories. Stillinger carried numerous jars for specimens and Root had equipped himself with a large cream can. They both returned loaded to the guards with exhibit specimens and choice bed-time stories for the cold winter nights at home.

Dickey had to leave the bunch on Saturday, May 7. His absence was felt at once. Dickey is a genial soul, who makes his presence felt by his willingness to go the limit in work with the best of them. He can take his kidding and pay in the same coin.

Most of Sunday, May 8, was spent in scouting and getting an eye full of blister rust. This is not difficult at Cheekye and the station of Brackendale, a couple of miles below. Cronartium ribicola is no respector of age. Pines are attacked before cutting their baby teeth and the hoary crowns of those 75 to 100 feet high, are beginning to bow before the invader. And what is more, it is unnecessary for the trees to be nestling on the viperous bosom of a great field of Ribes bracteosum. In situations in the west like those at Cheekye, we may have to scratch our heads twice before we solve the blister rust problem.

Monday, May 9, Putnam, Stillinger, Root, and Goodding started for home, leaving the dirty work for Riley, Johnson, and Whiting. Stillinger and Root took a side trip to the Chico infection area in Washington to make observations and take pictures. They rejoined Putnam and Goodding at Seattle. Here Stillinger, longing for the fleshpots of Spokane, deserted the party, while the others went on to Corvallis, Oregon. Putnam and Root decided to go on to California to rediscover a little summer, if possible. From the last newspaper reports, however, the weather there is still quite unusual.

THEY DO MAKE MISTAKES

A recent request for supplies from Kenyon contained the following items:

100 sheets of paper
100 erasers

TRIP TO CHEEKYE, B.C. WORTH-WHILE

The following statement has been made by Mr. Dickey, Chief of the Division of Horticulture, for Montana: "The trip to the Cheekye section was certainly a very educational one and I shall find it very beneficial in trips that will be made into the timber in time to come. Will probably be in the North Fork of the Flathead, also in the South Fork districts on a trip this coming summer and you may be sure I shall keep my eyes peeled while in the white pine sections in both districts."

CANADA TAKES ACTION AGAINST THE BLACK CURRANT

According to Regulation 8 of the domestic blister rust quarantine recently issued by Canada "On and after June 1, 1927, it will be illegal to sell or otherwise dispose of for planting or other purposes all species of the black currant, including horticultural and standard commercial varieties thereof, within and throughout the Dominion of Canada, except within the provinces of Alberta, Manitoba and Saskatchewan and certain counties of Ontario."

CULTIVATED RED CURRANTS AND CULTIVATED GOOSEBERRIES MAY NOW ENTER CANADA

On and after April 20th, 1927, the importation into the Dominion of Canada of rooted plants, grafts or cuttings of currants and gooseberries from all countries is prohibited. Provided, however, there is no restriction on the importation of standard commercial varieties of gooseberries and red or white currants cultivated for their edible fruits only, nor on the fruits of either currants or gooseberries.

BEWARE OF THE CHEMICAL ERADICATORS

The following is taken from a letter from the California eradication camps: "The flour sack you had while up here, containing a supply of your Atlas Weed Killer, got mixed in with my grub supply. When the cook came across it, she took it for some sugar that was left over from last year. She put a goodly supply in a batch of prunes and bluey--'tis lucky she tasted them before serving. She burned her mouth quite a bit. The worst part of it was she mixed the remainder of the chemical in with twenty pounds of sugar and I had to junk the whole works."

RIBES PETIOLARE RECONNAISSANCE

H. R. Offord

"Chief" Myers and the writer have just completed a very interesting survey of the country between Bovill and Elk River, Idaho. One of our objectives was to locate areas of Ribes petiolare suitable for chemical eradication work. One very striking point arose, and that was the desirability of performing R. petiolare reconnaissance early in the year. The overstory of Salix and alder leaves had not yet opened out and as a result, all Ribes--R. petiolare, G. inermis, and R. lacustre stood out on the horizon like the proverbial black eye on the blonde. The writer is of the opinion that scouting for R. petiolare should in the future be performed at this period of the growing season.

ERADICATION WORK IN CALIFORNIA

Eradication work in California this year is located on areas adjacent to those eradicated last year. Work was started on May 18 with twenty-three men in camp. The work is being done in mature sugar pine - yellow pine type which is soon to be logged. About 600 acres were eradicated by June 1. Five thousand eight hundred ninety-eight G. roezli and 606 R. nevadense were found on this area. The bushes fruit heavily in this mature timber. It is expected that by eradicating them just before logging and then eradicating the seedlings a few years later, before they have fruited, that the area will be made quite free from Ribes.

WHITE PINE IN OREGON

L. N. Goodding

We do not think of Oregon as the home of western white pine. In fact, if it is spoken of above a whisper, the wise and learned smile that smile of sophistication parents often use with small children. This is the land of Douglas fir. Western white pine in Oregon is out of its range and consequently is always inferior as well as limited in quantity.

With all this in mind, the following item from H. G. White, Assistant Supervisor of the Santiam Forest and at one time a logger in the Detroit region, is interesting:

"Smith and Smith loggers operated near Detroit in 1900. Douglas fir was so low in price that it was not considered worth the price of operations at that point, so the company did selective logging on an area immediately north of Detroit taking out by ox team nothing but western white pine. Some of the stand was 50 % white pine and the company took out between 200,000 and 300,000 feet of choice lumber from a very limited area.

"In 1905 another company considered sending a white pine from that region to the International Fair at Portland. Only the expense prevented this. The tree yielded 4 clear long and the first log averaged 6 feet in diameter."

From this, land and climate seem to be all right for western white pine.

PLANTED WHITE PINE MUST BE PROTECTED FROM BLISTER RUST

What may be expected from planting white pine without protecting it from blister rust, after it is present in the area, may be gleaned from such a case in British Columbia. On April 10th, 1923, a planting of about 500 three-year-old white pine from the Wind River Nursery, Washington, was made in an opening in the woods at Daisy Lake, B. C. Blister rust was present on all sides and currants and gooseberries were especially abundant right up to the edge of the plot on the west and northwest. A large mat of Ribes lacustre occurred on the northwest corner of the plot, while R. bracteosum was abundant along Chance Creek, a short distance to the west. On October 19, 1924, 449 of these trees were still living and 215 showed typical blister rust swelling. On May 7th, 1927, 382 of these trees were still present, all but 33 of which were infected with blister rust; seven had produced aecia twice; 53, once; 174 showed pycnial scars; and 115 were dead. In other words, after four years, about 92 per cent of these seedlings were infected and doomed to death by blister rust.

BLACK CURRANT ERADICATION IN WASHINGTON

Since May 19, two men have been eradicating black currants in Spokane. During May, 24 plantings of 56 bushes were found. During the progress of this work, extensive educational work has been carried on by Mr. Felch, consisting of articles and pictures in the local papers and window exhibits. One of the most effective means of distributing information has been by a series of pictures of the work shown in an automatic projector which was borrowed from Washington State College. This machine has been shifted from time to time to the lobbies of the different banks and store windows. Mr. Felch reports that judging by the number of people who had heard of blister rust and were willing to part with their bushes, by the number of locations reported by phone, and by the fact that a few plantings were eradicated before the scouts arrived, the publicity was effective.

RECHECKING BLACK CURRANTS IN IDAHO

On the second of May, Mr. Stuart and Mr. Wolcott started rechecking of black currants in the northeastern county of Idaho, Boundary. Thus far, ten plantings consisting of 35 bushes have been found. Seven were new locations, two were plantings that had once been eradicated and one a planting which had been reported before, but had not been eradicated due to the refusal of the owner. We seem to find some every time a territory is rechecked.

NOTES

Mr. Welsh, Commissioner of Agriculture of Idaho, and Mr. Dean, Chief of the Bureau of Plant Industry of Idaho State Department of Agriculture, called at the Spokane office on June 8.

* * *

Messrs. Strong, Patty, and Glasgow spent the period May 24-27 making a preliminary examination of the Ribes eradication area on which they expect to work this summer.

Mr. Kenyon with four assistants started the reconnaissance work in California on May 18th. They are working in the northern portion of the Stanislau National Forest.

* * *

Mr. Bedwell is in the field making arrangements for camp sites for training reconnaissance men. Training camps will be Coolin, Fernwood, Pierce, Avery and Sullivan Lake.

* * *

Mr. Offord is in the field checking his plots at Wallace and Santa, Idaho. He has one assistant with him, Mr. Legrid. They will also establish some more plots at Santa.

* * *

Mr. Strong opened his eradication camps in the Honeysuckle Ranger Station district about 30 miles east of Coeur d'Alene, on June 6. He has with him Messrs. Patty, Riley, Glasgow, Peterson, Quine, and the leaders of the work in four of the protective associations of northern Idaho, Messrs. Myers, G. Whiting, Geil, and Painter. They will receive actual experience in eradication methods until about June 15. At that time, each will go to his particular association to start reconnaissance work.

* * *

Mr. Rockie has spent the last two weeks in the field examining burned over areas for locations for ecological plot studies during the summer. He also spent a few days at Missoula in conference with forestry officials and reading reports regarding conditions on burns in northern Idaho.

* * *

Messrs. Offord and Myers spent the first few days in June in the vicinity of St. Maries and Elk River, searching for plots for chemical eradication.

* * *

The scene of the chemical eradication work this season in north Idaho will be in the vicinity of Bovill, Santa, and Clarkia.

* * *

A cursory inspection of plots at Santa and Clarkia showed very promising results of the chemicals on R. petiolare. G. inermis showed much greater resistance.

* * *

Twenty-nine federal violations and 25 state violations of blister rust quarantines were intercepted this spring. Six were by express and the remainder by parcel post. One hundred forty-two federal violations by auto transportation were intercepted at the interstate bridge at Portland. These were all R. sanguineum.

* * *

Mr. Putnam spent the period May 12 to 22 in assisting Mr. Kenyon with his reconnaissance work in California.

* * *

Mr. Root attended the annual convention of the County Horticulturists of California at Giant Forest, California. He discussed the blister rust problem and its relation to black currant eradication.

* * *

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Vol. 2. July 15, 1927. No. 7.

BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

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Confidential
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U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington

Vol. 2. July 16, 1924. No. 7.

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for

STATE AND PROJECT LEADERS

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U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington

EXPERIMENTAL RIBES ERADICATION IN IDAHO

Experimental Ribes eradication in Idaho was started on June 3, when the first of the men and a load of supplies and equipment left Spokane. Since that date, the temporary men have been leaving Spokane for camp every few days. At the present time, four camps are in operation and the fifth will be started on July 1.

The region chosen for this season's work represents a much higher white pine value than any area in which we have heretofore worked. All age classes of timber contain a high percentage of white pine. This species also reproduces very vigorously, in many places the reproduction being almost a 100% stand of white pine which is making excellent growth.

The tabulation given below shows the results of the work during June. Only about 70% as much area was worked as in June, 1926, but over 4½ times as many Ribes were pulled. The men have thus far been working in portions of the area where Ribes are very numerous, as evidenced by the general average of 188.7 per acre. The area as a whole contains a satisfactory percentage of scout area, but this has not as yet been reached. On the basis of an estimated man-day cost of $6.00, the cost per acre during June is $3.30 per acre. This is considered a satisfactory figure where Ribes occur at the rate of 188.7 per acre.

Experimental Ribes Eradication
Coeur d'Alene National Forest
June, 1927.

Type	Acreage	% of Total Acreage	Number of Ribes			Total Ribes	Average Ribes per Acre
			R. lacust.	R. visc.	G. inermis		
Dense Mature	279.50	18.5	1403	-	-	1403	5.0
Open Mature	259.70	17.2	7942	10428	-	18370	70.7
Dense Pole	121.08	8.6	1506	840	-	2346	19.4
Open Pole	44.55	2.8	7915	1713	-	9628	216.1
Dense Reproduction	279.00	18.5	1476	-	-	1476	5.3
Open Reproduction	26.00	1.7	14607	26	49	14682	564.7
Cut-over Mature	347.83	23.2	22995	64597	-	87592	251.8
Stream	139.05	9.3	107577	193	26692	134462	967.0
Swamp	3.75	.2	66	-	12178	12244	3265.1
Totals	1500.46	100.0	165487	77797	38919	282203	188.7

It will be noted from the tabulation that two new eradication types have been included: Cutover Mature, and Swamp. The Cutover Mature type consists of a stand of mature timber from which, under the management plans of the Forest Service, all white pine, spruce, and larch 14 inches and over has been logged. In the particular areas thus far encountered, R. lacustre and R. viscosissimum were found in considerable numbers, seemingly dependent on the period since cutting. Conditions on such

areas will be the subject of a special study during the season.

The Swamp Type is a division of the Stream Type. It represents areas where larger streams are flowing over alluvial bottoms, the result being a formation of willow and alder, with many Ribes. This type seems to contain a higher percentage of G. inermis than of R. lacustre. It is generally similar to the areas, farther south, in which R. petiolare grows.

These two types will be tentatively maintained during the present field season. Their final status and definition will be considered when records of the entire season are available.

EXPERIMENTAL RIBES ERADICATION IN CALIFORNIA

Experimental Ribes eradication started in May in the vicinity of Strawberry, Stanislaus National Forest, was continued in June. The following tabulation gives the result of the work:

Eradication Type	Acreage	% of Total Acreage	Ribes Pulled			Ribes per Acre
			G. roezli	R. nevadense	Total	
Stream, mature timber	103.6	7.2	3,377	5,309	8,686	83.8
Sugar pine-fir, mature	337.5	23.4	11,082	757	11,839	32.1
Sugar pine-yellow pine, mature	998.9	69.4	6,264	401	6,665	6.7
Totals and averages	1440.0	100.0	20,723	6,467	27,190	18.9

The following excerpt from Benedict's report shows the working conditions encountered and the organization of the crews to secure the best results.

"Work was concentrated on the portion of our eradication area marked for felling, to prevent any interference to the eradication work from the logging operation. The area thus worked represents our easiest working conditions, consisting chiefly of mature timber of both sugar pine-yellow pine and sugar pine-fir types. This area is being logged at the present time.

"On June 20 a revision in crew formation was made. The slower and less promising men were segregated into one crew and given to a foreman who showed special qualities in handling men. This crew was put to work on a block containing a large number of Ribes where the chief diversion during the day was digging. The other two crews were thus 'released' to speed up their work as best they could. On June 27 another revision in crew formation was carried out, necessitated by the addition of two new men. One crew of slow men, two crews of the faster men, and two three-man scout crews were organized. This represents a further attempt to get the best and fastest men where they can work to their best advantage. This formation is in operation at the present time."

PROGRESS OF WESTERN BLISTER RUST CONTROL PROGRAM

S. N. Wyckoff

Project	Montana	Idaho	Washington	Oregon	California
Cultivated black currant Eradication.	Completed 1926	Will be completed in 1927	Will be completed in 1927	Completed 1925	Approximately one-half done.
Quarantine enforcement Nursery inspection and Sanitation.	Permanent and constant effort, in cooperation with State officials				
Control reconnaissance of white and sugar pine regions.	Started in 1926 Should be completed by 1929	Started in 1923 Should be completed by 1929	Started in 1927 Should be completed by 1929.	Started in 1925 Should be completed by 1929	Started in 1926 Should be completed by 1929.
Development of local control methods.	Should start in 1928 taking advantage of work done in Idaho.	Started in 1922. Operations increasing in scale and efficiency each year.	Plans to be based on results of work in Idaho and Oregon.	Started in 1925 for sugar pine areas, and continued in 1927.	Started in 1926. To be continued over different parts of the sugar pine belt.
Special studies on chemical eradication of currants and gooseberries.	Methods to be secured from work in Idaho.	Started in 1924. Excellent results secured in eradicating the wild black currants.	Methods to be secured from work in Idaho.	Methods to be secured from work in Idaho and California.	Started in 1927, on basis of tentative methods developed in Idaho.
Special studies on life history, and growth habits of wild currants and gooseberries.	Results to be secured from work on same species in Idaho.	Started in 1924. Results have proved of practical value in planning local control.	Results to be secured from work on same species in Idaho and Oregon.	Started in 1927 in close conjunction with experiments on local control.	Started in 1926 in close conjunction with experiments on local control.
Studies on the life history of the rust fungus.	Conducted since 1922 in the western states where the rust occurs and in British Columbia. Results are directly applicable to the formulation of plans for local control.				

EXPERIMENTAL RIBES ERADICATION IN OREGON

Experimental Ribes eradication was started June 20, on an area of planted western white pine, in the locality of Mount Hood. This area was chosen because it represents very typical conditions of growth of R. bracteosum, R. sanguineum, and R. lacustre.

The purpose of this work is as much ecological as to secure low costs by extensive local control. It is the forerunner to the latter work. Each eradication area is considered as an ecological permanent plot, located near which is a control on unworked land. These plots will be carefully checked in future years. The information it is hoped to secure is described as follows by Goodding:

"We hope to get some excellent data on the come back of the two leading species, i.e. R. sanguineum and R. bracteosum, after eradication in this region, the amount each sprout and layer, how fast they grow, how much leaf surface is produced, the conditions most favorable and unfavorable to their growth, the amount of seed production, conditions favoring germination, and those prohibiting same, and the dormant period of these Ribes seeds. We wish to learn whether eradication as usually employed is effective or whether it merely creates an excellent seed bed by exposing mineral soil and burying seed or produces a prolific crop of shoots. Some of these plots should show us in a few years the effect of shading on the bushes. In many places large R. sanguineum bushes seem to be dying. We wish to learn the cause. In our first eradication plot all the R. sanguineum bushes were large in spite of the fact that mineral soil is everywhere exposed. A second plot we have chosen has young and old plants. We want an explanation. Above all along the line we wish to glean some principles which can be applied in blister rust control."

MR. BEDWELL INJURED

Recently while on a field trip, Mr. Bedwell generously aided a ranger in shoeing a mule. While clipping a horseshoe with chisel and sledge, Mr. Bedwell was struck on the nose and in the left eye by a piece of flying steel. He was brought to St. Luke's Hospital in Spokane. Present indications are that he will not lose the sight of his eye but he had a narrow escape. Although he is resting comfortably now, it will probably be some time before he can leave the hospital. If no complications set in he should suffer no serious results from the accident.

THE TRUCK DRIVER'S ADVICE

Recently Mr. Wyckoff started with Mr. Payne in our new truck to the eradication camps in north Idaho. No trouble had been experienced with the truck up to that time. "Three punctures and late for supper were the good luck incurred by transporting the boss," says Payne, "He's a bad omen and brings bad luck, so beware of the boss."

RECONNAISSANCE

Federal reconnaissance crews were given preliminary training, five men at Sullivan Lake in the Kaniksu National Forest, and eleven men at Avery, Idaho. Mr. Putnam and Mr. Riley acted as instructors. Those reconnaissance parties are now working on the St. Joe, Kaniksu and Pend Oreille national forests. During June 19½ sections were worked intensively and 43¾ sections extensively.

Twenty-three men are doing reconnaissance work on the land of the timber protective associations in northern Idaho. After a preliminary training period of a week was conducted at Coolin, Fernwood, and on Orofino Creek, all crews started actual reconnaissance on about the 24th of June. The following table gives a summary of the results:

Association	Number Men	Sections Worked
Priest Lake	5	8
Potlatch	4	5
Pend Oreille	7	21
Clearwater	4	6
Coeur d'Alene	3	4
Total	23	49

Mr. Johnson started reconnaissance work with two assistants on the 15th of June. They are working on the Kootenai National Forest. Twenty-seven sections have been completed.

Mr. Kenyon with five men is doing reconnaissance work on the northern part of the Stanislaus National Forest in California. During June 40 sections were worked intensively and 20 sections extensively.

WHAT ABOUT YOUR RECORDS?

Roy Calhoun

Have you ever thought that your value to the organization for which you are working is founded largely on the records turned in for use by the office?. What one man can do with his knowledge does not amount to so much when compared to the value of his records to others who utilize them in the development of the work.

It would be no great task to state what condition your field records are in as a rule by observing the condition of vouchers, time reports, itinerary sheets, etc., which arrive at the fiscal desk for payment.

The following are a few of the documents turned in in haphazard fashion:

1. A bill turned in and initialed only (not vouchered) for payment.

2. A voucher, slovenly prepared and with errors, was returned for correction.

3. Another voucher returned with it for correction because of errors in which the head of party used nick-names instead of proper names of his field men.

4. An expense voucher was turned in the first of July covering April dates. In poor shape, besides!

5. Two expense accounts for second quarter of fiscal year turned in four quarters (almost 1 year) late.

6. Two sheets of time reports showing total hours or days worked only. The specific days worked are required.

7. One time report showing only total days worked and amount due. Part of the names were properly reported.

8. One voucher in excess of $50.00 with half-hearted exigency statement rewritten here and returned for signature.

9. One voucher in excess of $50.00 stating "impracticable to obtain bids." We must know "why?"

10. Two vouchers, each covering two different fiscal years returned to be rewritten.

11. Two time reports only containing a number of names were arranged alphabetically.

12. Several instances are recorded where duplicate time reports were received.

These are a few which are recalled during only five minutes required to write them down.

It is noted that the men stationed farthest from Spokane are turning in reports in far better shape than most men who are in the Spokane Office frequently.

A great part of my time is now being spent "trouble shooting" in cases most of which could be avoided by field men using more care in turning in reports, vouchers, etc. Why not be more careful and give me more time to take care of matters properly turned in to the office and thus it will undoubtedly develop that I can be of more help to you.

THE OFFICE BUYS SOME TRUCKS

The policy of hiring trucks and cars by the month has been changed to one of purchase of trucks by the office for men who must travel a great deal as well as transport men and supplies.

Messrs. Offord, Bedwell, Riley and Kenyon have been supplied with new Ford trucks; Mr. Strong has been provided with a new one and one-half ton G. M. C. Truck. These purchases should prove much more satisfactory for our work as well as reduce the cost of our work. They will also prove very serviceable for other projects when not in use by these particular men.

NOTES ON BLISTER RUST INFECTION IN BRITISH COLUMBIA

C. N. Partington

1. First blister rust infections in British Columbia- 1927

May 22-II on	G. divaricata-open	)
	G. divaricata-partial shade	)
	G. divaricata-shade	)
	R. lacustre -partial shade	) Collected and
	R. lacustre -shade	) determined by
	R. sanguineum-open	) myself at
	R. bracteosum-shade	) Brackendale, B. C.
	R. nigrum -open	)
	R. vulgare -open	)

May 22-II on G. setosa- (open) Collected by L. D. Lloyd and determined by myself -Ribes garden, Chance Creek, Daisy Lake, B. C.

May 23-I found II, producing in some cases urediniospores, on R. lacustre and R. bracteosum and on most of the species in the Ribes garden, Daisy Lake.

May 28-I found II, with II spores on G. divaricata -shade and open forms at mile 73 PGE (Elev. 1400')
No infection found on R. sanguineum or R. lacustre on same date.

2. By June 1 -no telia have yet been reported in B. C.
1 -a. It is interesting to note that infection was found on R. nigrum and on R. bracteosum as soon as on earlier-developing wild species. But evidently infection was showing up on G. divaricata several days before found.

3. Two cankers found in Birkenhead River Canyon on two P. monticola trees widely separated. In each case R. viscosissimum was only Ribes species seen in immediate vicinity. More intensive scouting necessary to strengthen this contention that R. viscosissimum is responsible for starting these two infections. As far as known this is the first instance of R. viscosissimum being the clear-cut evident cause of a pine infection. the Birkenhead River Canyon has only scattered pine infections and is therefore a good field to watch intensification of the rust on pines by means of R. viscosissimum.

* * *

Mr. Stillinger gave an illustrated talk on blister rust before the Northwest Association of Pathologists, Entomologists and Horticulturists at Pullman, Washington, on June 28th.

BLACK CURRANT ERADICATION

Idaho

Cultivated black currant eradication has been carried on in both northern and southern Idaho during June. In northern Idaho, a recheck of Bonner and Kootenai counties has resulted in the location of 7 plantings, representing 27 bushes. In southern Idaho, eradication in Teton County has given the location and eradication of 38 plantings, representing 365 bushes.

Washington

Cultivated black currant eradication in Spokane, started in May, was finished during June. In addition to the City, a strip one mile in width around the city limits, and a portion of the Spokane valley were rechecked. The final results of this work are as follows:

	Plantings	Plants
Total eradicated in City of Spokane	60	203
" " outside " " "	16	103
Located but not yet eradicated	4	31

During the course of this work, special effort was made to secure helpful local publicity by newspaper articles and local exhibits. This was found to be very helpful. Felch reports as follows on this phase of the work:

"There have been more plantings reported and destroyed by owners, and the people are better informed concerning blister rust in Spokane than in any other place scouted. In no case was it necessary to resort to State authority to destroy bushes.

"This condition is largely due to publicity, and it appears that the effort in securing it is well repaid."

California

Black currant eradication work was started in California on June 13. The work has been largely in Sacramento, San Joaquin and Marin counties. Twenty-five plantings, consisting of 142 bushes were eradicated.

COOPERATIVE EXPENDITURES IN WESTERN STATES
FISCAL YEAR 1928

State	State and Private Expenditures	Federal Expenditures	Total
Montana	$ 7,500.00	$ 6,000.00	$13,500.00
Idaho	24,640.00	78,000.00	102,640.00
Washington	8,000.00	13,000.00	21,000.00
Oregon	22,750.00	16,000.00	38,750.00
California	17,000.00	19,000.00	36,000.00
Total	$ 79,890.00	$132,000.00	$211,890.00

The balance of the Federal appropriation is devoted to technical studies of the disease by the Office of Forest Pathology, special field studies not carried under terms of the cooperative agreements with the states, supervision and miscellaneous expenses and supplies.

CHEMICAL ERADICATION
H. R. Offord

The plots at Wallace and Santa, Idaho, were checked over during June. The report of 96.3 % kill on R. petiolare last year was confirmed by this year's observations.

Plots at Santa, Idaho, showed that the second spraying of $NaClO_3$ accounts for 95 per cent of R. lacustre but only 50 per cent of G. inermis.

The following table gives an analysis of Block III, Clarkia, Idaho:

Species	Live Stem 1926	Live Stem 1927	Dead Stem 1927	% Kill on Stem 1927	% Kill on Stem 1926
R.petiolare	135,520	982	27,120	96.5	96.3
R.lacustre	18,800	539	717	57.1	57.3
G.inermis	27,540	3,635	2,389	39.8	55.2

Six men are now working in the vicinity of Bovill, Idaho, establishing new plots.

OBSERVATIONS ON RIBES
Reported by W. A. Rockie

An examination of some of the large burns of last year on the Kaniksu shows some interesting things regarding Ribes germination. On the lower parts of north slopes and just at the edge of the beginning of the opposite slope Ribes viscosissimum is coming in thick. R. lacustre is coming in right on the bottom. Some crowns of Ribes which were not killed are sprouting. Evidently as the fire passed over this draw, it did not burn as severely as it did on the remainder of the slopes. It was interesting to note that on the slopes where the fire had not actually burned the tops of the seed tree, that these trees seeded the area and young seedlings are coming in in great abundance.

In another case where a new road was cut last year, 1926 seedlings of R. viscosissimum are abundant. Also where there were slips of the bank along this road during the winter, 1927 seedlings of this species are abundant.

LATE SEASON ON THE ST. JOE NATIONAL FOREST
H. N. Putnam

Owing to the unusual amount of snow in the back country of the St. Joe National Forest, it has been impossible up to the first of July, to start a control reconnaissance crew in the Pole Mountain Ranger District. This area was opened much earlier than this last year.

SUMMER NEWS LETTER

You and your men have received copies of the first issue of the Summer News Letter. We hope that you will find this first humble effort partly satisfactory. You no doubt will have some distinct ideas all of your own as to what the nature of this letter should be. If you have any suggestions as to improvements, we shall be very glad to read them. We certainly appreciate the honest effort made by a majority of the leaders to contribute as well as have their men contribute items for this letter. We are glad to receive any and all material. Some may suffer from the blue pencil, some may not be issued because they are late or for lack of space, but let us have volumes to select from. Do not forget that the material for each issue should be in by the 10th of the month. Send them in with your monthly reports.

RIBES TRISTE

H. N. Putnam

Found on June 24, 1927, near Twin Creeks Ranger Station on drainage of Little North Fork of Clearwater River. Growing on moist, deep soil at elevation of about 4000 feet. Associated with R. petiolare and R. lacustre. Apparently more shade enduring than R. petiolare.

Distinguished from R. petiolare in field by having small, short, dark red flowers borne on few-flowered, short racemes, 1½ to 2 inches long, petals short, diameter of flower not over 1/10 inch. The flowers of R. petiolare are borne on a many-flowered, quite stiff raceme, often 3 to 5 inches long. Flowers of R. petiolare are conspicuous, white, separate-petaled, each petal often 1/8 inch long.

Leaf characteristics give further distinguishing marks. The leaf of R. triste is thin, smooth on both surfaces, very fragile. There are no sessile glands on the lower-side of the leaf, and no characteristic odor. In shape, color, and size the leaves of R. triste and R. petiolare are difficult to distinguish.

R. triste differs from R. petiolare in manner of growth. It produces a horizontal growth from which shoots arise for a distance of not over 2 feet in height. R. petiolare, on the contrary, often grows to heights of 6 feet.

If no flower is seen, it is very difficult to distinguish these two Ribes species at a distance. It is necessary either to feel, see or smell of the leaf.

R. triste apparently is much less abundant than either R. petiolare or R. lacustre. So far it has not been found in the open, but only in half shade of coniferous growth. Our findings so far show it to be confined to the drainage of the Little North Fork of the Clearwater River.

NOTES

We were glad to greet Melis and that characteristic smile in a very brief call at the office on the 6th. of July.

* * *

Mr. Jack Rodner, who was our Agent on the Coeur d' Alene Timber Protective Association and resigned to accept a position with the Blackwell Lumber Company, as logging engineer, spent a few minutes in the office on the 6th. of July. Jack is as usual except for the development of a "bay window." He is very well pleased with his new work.

* * *

How about a few notes from our eastern readers? We do not know all of you fellows but we would like to have some contributions from you. The only cost of subscription to our humble effort is a contribution occasionally.

* * *

Dr. Raymond Kienholz reported June 15. He is a specialist in ecology and is visiting all of the projects in order to obtain information regarding field conditions and our methods of work. As a result of his field observations he will develop a definite program for our ecological studies as well as coordinate the work of the different projects so that some ecological information regarding wild Ribes may be obtained from all of our work.

* * *

Mr. Putnam recently made a field trip into the Nelson, B. C. region. He reports some infection on cultivated black currants and in one case cultivated red currants were lightly infected. The red currants showed no intensification of the rust. Uredinia and telia were both found. Ribes infection appears to be about a month late.

* * *

Mr. Wyckoff and Mr. Stillinger attended the meeting of the Western Plant Quarantine Board at Reno, Nevada, on the 20th. and 21st. of June. Besides giving a discussion of the Blister Rust Quarantine, an illustrated talk was given regarding the whole blister rust problem.

[illegible]

[illegible] is very glad to greet Delta and that demonstration [illegible] by a very brief visit at the office on the 20th of July.

* * *

Mr. James Thomson, our new [illegible] on the Queen of Alaska Timber Properties, Ketchikan and Tongass, is [illegible] a position with the Southwest Timber Company, as logging engineer, spent a few minutes in the office on the 4th of July. He is the usual model for the development of a "Guy Friday." He is very well pleased with his new work.

* * *

[illegible] a few words from our meeting minutes:

"I do not know all of you fellows but we would like to have some constructive from you. The only [illegible] of membership in our Delta effort is a [illegible] relationship."

* * *

Mr. Dorris Clinkin reported from [illegible]. He is a specialist in design and in erecting all of the [illegible] in [illegible] [illegible] [illegible]

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for

STATE AND PROJECT LEADERS

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U. S. Department of Agriculture
Western Office of Blister Rust Control
Spokane, Washington

IMPRESSIONS OF THE HIGH SIERRAS

Ernest E. Hubert
(Cooperative Agent, School of Forestry, University of Idaho)

Bright sunlight, heat, dust, Paul Bunyon currant bushes, tall trees, odor of bear clover, thorny brush, genial blister rusters, good grub, presence of civilization, these are flashes of impressions left with me after a highly interesting and very pleasant trip to Benny's eradication camp in the high Sierras of California. With "Steve's" good company and excellent travelling advice I landed in the camp along the north fork of the Stanislaus River just in time to join the crew in a mad stampede for the supper table. Later, with a real meal under our belts and our beds made on cots placed in the main room of the new building constructed for the Forest Service investigative staff, we felt we were off to a good start.

George Root joined the exploring party at Sonora and Mr. D. Dunning of the Forest Service furnished many data on the history of the stands visited. During the three days spent at the camp the most representative areas were examined and several photographs and much information were obtained.

Trying to absorb all the details of value in an ecological study of the sugar pine region and at the same time sidestep "rattlers", worm through spiny ceanothus, and giant Ribes bushes and slide and stumble through the malodorous bear clover is an experience that can only be found in sunny California. In my absorption of details I heard Benny say "Here's our famous R. nevadense, Doc." I glanced around at my feet and suddenly awoke to the fact that Benny was pointing over my head! Such is the effect of climate, or is it California?

The sugar pine area in the Sierras is so different from our Idaho white pine stands that practically all of the main factors influencing the invasion and establishment of Ribes species on cut-over or burned-over areas in California must be considered in a different light. With open stands, the veteran Ribes bushes persist in the mature forest and when the stand is cut, fruiting is greatly stimulated and the cut-over area soon supports an all too dense population of seedlings. In searching for the easiest and cheapest method of eradication much must be learned of the life history of the Ribes in relation to methods of cutting and methods of brush disposal. The factor of fire does not appear to hold the importance in the California studies that it does in the Idaho region. However, in some of the sugar pine areas tractor skidding is a new factor and will have to be considered since this method results in a very noticeable disturbance of the forest soil, and in some cases an almost complete removal of the portion of the brush above ground. Though the live stems may have been destroyed by the logging operations, the revival of the uninjured root crowns of Ribes species remaining in the loose soil must be taken into consideration and this along with other observations points to an eradication of the Ribes on the proposed cutting or sale area before logging takes place. Whether or not Ribes seeds are stored in the duff, the ages at which the different Ribes begin to produce

fruits, and the amount of Ribes reproduction that may be expected on a cut-over or burned-over area are questions that need to be answered in order to simplify the eradication work.

We were shown some interesting experiments that demonstrated the value of removing the root crown in grubbing out a Ribes bush. Where root crowns were carefully removed no new shoots appeared this season but in many cases where the crowns were not removed they bore husky shoots of new growth. Incidentally I tried arching my back against a mature G. roezli bush and only succeeded in loosening the sand around the root crown. Water must be a long ways down to cause the roots to burrow so deeply.

An opportunity was also afforded to examine growing along a flume a number of large bushes of G. roezli and R. nevadense which had been treated several days previous with chemicals. All of the foliage had been killed and the plants appeared to be "on their last legs". I was impressed with the fact that bushes several feet from the flume had been successfully treated from the flume top. Sprayed bushes of R. nevadense were also examined at the Leland Meadows area but these had but recently been treated and showed only minor injury.

The scarcity of coniferous reproduction on the areas studied was startling. Having come direct from a trip into the Coeur d'Alene National Forest where young seedlings were coming up almost as thick as those of R. viscosissimum on the newly burned or logged areas, the few seedlings of concolor fir and of incense cedar seemed unusual. During the trip I was able to find but one seedling of sugar pine of this year's germination.

I could not close this rambling account without mentioning the treat given us by members of the camp on the occasion of their farewell party to certain members who were leaving for home. An interesting entertainment was staged under the trees the evening of August 4th. Clever pantomime and many local hits were presented for our approval not to mention the watermelon feed that followed. We enjoyed it thoroughly and crawled into our blankets with the refrain of the main chorus pleasantly running through our minds:

"We are the Ribes Boys, the Ribes Boys are we,
We come into the mountains to save the white pine tree."

SHADES OF YE OLD TIME CRUISERS

Paul Bunyon would turn over in his grave and cause another earthquake in China and old time cruisers would throw up their hands in disgust if they could see some of the reconnaissance crews this year.

During one weeks trip such foreign sights were seen as spring beds in camp and each crew had at least one member who was addicted to either a night shirt or pajamas. One crew was even using some stray horses to go to and from work along the trails.

ERADICATION EXPERIMENTS IN CALIFORNIA

W. V. Benedict

Different crew formations were tried, in different Ribes concentrations and under various working conditions to obtain additional information on the formation best suited to conditions as existing in this locality. The five man crew with foreman checking behind, the four man crew with foreman checking behind, the four man scout crew with foreman working in line and the three man scout crew with foreman working in line, were tried during the month. The data secured thus far indicate that the three man scout crew, with foreman working in line, will get more Ribes and more acres per man day, in any territory than any other crew formation. The chief apparent advantage of the three man scout crew over the four man scout crew is that when the crews are working in heavy concentrations the four man scout crew is covering a little too wide an interval to be efficient without a checker behind the line. The three man scout crew shows possibilities of cheaper eradication on areas containing more Ribes per acre than is generally conceded to be Scout territory. The following table sumarizes the results of this work:

Type	Acreage	Percent of Total Acreage	Ribes Pulled			Ribes per Acre
			G. roezli	R. nevadense	Total	
Sugar pine- yellow pine, cut over	1073.1	61.2	22271	767	23038	21.5
Sugar pine-fir, cut over	627.8	35.8	72259	4430	76689	122.2
Stream, cutover	52.0	3.0	11762	20554	32316	621.5
Totals	1752.9	100.0	106292	25751	132043	75.3

EXPERIMENTAL CHEMICAL ERADICATION

Data taking and spraying has been in full swing for the month of July at the main camp at Bovill, Idaho. Bell reports 22.3 acres of heavy Ribe concentration sprayed during the month. This area was covered in 404 man spraying hours and 1386 gallons of $NaClO_3$ were consumed. Average cost per acre--labor $7.58, chemicals $11.80, total--$19.38. The average cost per acre of eradication by $NaClO_3$ at Clarkia last year was $29.39. All of which indicates that there is still plenty of deadwood which can be cut away from the cost column. Data were first taken over the Bovill area according to the old method of applying figures obtained on a strip one-half chain wide over the block. Blocks II & III were completely covered in crew formation and it is interesting to compare the two figures, which are about as inconsistent as one would expect:

Block No.	R. petiolare		R. lacustre		G. inermis	
	Live stem per acre .5 chain strip	Live stem per acre complete cruise	L. S. per acre .5 chain	L. S. per acre complete cruise	L. S. per acre .5 chain	L. S. per acre complete cruise
II.	2,382	5,650	1,068	1,230	4,130	3,320
III.	11,950	9,775	757	1,715	1,448	3,850

At Santa, Idaho 38 different killing solutions have been tested for the most part on G. inermis. The acid form of chlorate acts very slowly and as yet no releafing of sprayed bushes has occurred. The alkaline sodium chlorate on the other hand acts very quickly and a small amount of releafing has already occurred.

The writer commenced experimental work in California July 21, and it is purposed to experiment chiefly with $NaClO_3$ and with $NaClO_3$ in combination with various acids, alkali and other salts. A check of 16 bushes sprayed early in May showed 100% kill of live stem in all instances and only 3 bushes suckering from the crown. R. nevadense appears rather susceptible to treatment.

Power sprayers made by Ross Fire Apparatus Company and Pacific Marine Supply Company are now available and the chemical eradication crews will take over this equipment for experimental methods study about August 15th.

EXPERIMENTAL RIBES ERADICATION IN IDAHO

Experimental Ribes eradication on the Coeur d'Alene National Forest resulted, during July, in the working of 6855.74 acres. While the average number of Ribes per acre is somewhat lower than for June, it is still very high, 117.2. The following tabulation gives the results of the work:

Experimental Ribes Eradication
Coeur d'Alene National Forest
July, 1927.

Type	Acreage	Percent of Total Acreage	Ribes Pulled				Ribes per Acre
			R. lac.	R. visco.	G. inermis	Total	
Dense Mature	1,038.10	15.1	13,808	422	8	14,238	13.7
Open Mature	2,154.50	31.3	104.898	8,698	165	113,761	52.8
Dense Pole	893.22	13.3	27.767	16,994	--	44,761	50.1
Open Pole	833.95	12.8	14,737	3,109	--	17,846	20.2
Dense Reproduction	425.00	6.2	15.163	142	--	15,305	36.0
Open Reproduction	131.00	1.9	28.964	1,376	--	30,340	231.6
Cutover Mature	749.47	10.8	164,912	111,274	914	277,100	369.7
Stream	570.45	8.4	185,758	2,282	65,612	253,652	444.7
Swamp	11.25	.2	779	--	35,557	36,336	3,229.9
Totals	6,855.74	100.0	556,786	144,297	102,256	803,339	117.2

INFECTION CONDITIONS IN BRITISH COLUMBIA AND WASHINGTON

Mr. Lachmund reports that he has evidence of very wide spread to G. inermis and R. petiolare in the dry belt in British Columbia and that he expects the same condition further east. However, infection is meager and the intensification is very light.

Preliminary observations made by Mr. Putnam and his men on the Coast region of Washington seem to indicate that while there may have been considerable aecial spread of the rust, there has thus far been very little uredinial intensification so that the infection on Ribes is as yet very light and scattering.

BLACK CURRANT ERADICATION

Idaho: The two men who have been rechecking black currants in northern Idaho, discontinued work on the first of August. The state was rechecked as far south as the St. Joe River. During July, 26 plantings, consisting of 107 bushes were found and removed, making a total of 45 plantings, of 182 bushes which were found on the recheck.

During the work some interesting observations were made. Crowns of plants in cases where the eradication work was done three years ago were found sprouting for the first time this year. Likewise, parts of stems which had been broken off three years ago and buried in dirt were found sprouting this year for the first time. The inspectors were of the opinion that the seasons had been so dry before this last season, that the plants had not sprouted.

Missed bushes were found in small blocks or sections while other blocks of territory were well done, indicating that certain crews evidently did not do their work thoroughly.

The two crews working in southeastern Idaho were kept busy eradicating plantings during July. The following gives the results of their findings for the month by counties:

County	Plantings	Bushes
Bannock	59	709
Bear Lake	91	699
Caribou	10	126
Teton	9	111
Total	169	1645

Washington: All of Yakima County and 85 % of Kittitas County was completed. Fifty-two plantings, of 286 bushes were eradicated.

Oregon: Some rechecking in Oregon is being done, revealing some interesting facts. One nursery was found with 500 black currants. They had been grown from seed since the Oregon Black Currant Law went into effect. Another fellow was found selling black currants in the Yamhill Market in Portland. His bushes were destroyed.

Sixty black currant bushes were found within a quarter mile of the Agricultural College at Corvallis. Long before this, Goodding should have smelled these bushes through his office window at Corvallis, but Goodding says, "Black currants are not so abundant in Oregon that just anybody can find them just anywhere."

California: Black currant eradication work in California has been conducted in Marin, San Joaquin and Contra Costa counties. The first two were completed. Twenty-two plantings of 129 bushes were eradicated. A recheck of territory of eradicated plantings revealed that in 15 out of 40 plantings, resprouting was found. Further, six new plantings of 20 bushes were found.

HOW OLD IS THAT BUSH?

Raymond Kienholz

The writer is attempting, with the aid of the compound microscope, to determine accurately the ages of bushes of the four species of Ribes most commonly found in the Inland Empire. By cutting sections of the stems with a razor and clearing them temporarily with chloral hydrate it is possible to get a fairly accurate idea of the age of the bushes. The results obtained thus far indicate that vigorous, rapidly growing bushes of all species are most easily determined as to age, the annual rings of wood being distinct and easily separated from each other. In bushes of R. viscosissimum and R. lacustre found growing in a very suppressed condition in a fairly dense stand of reproduction, it was almost impossible to determine ages accurately by this method. It is probable, however, that preserved specimens, cut with a microtome and properly stained, will give us the information desired, and such material is now being collected. The value of such study lies chiefly in the more accurate determination of the time which has elapsed since a given area has been opened up by fire or other agencies and the Ribes come in. By examining areas of this sort of different ages we will be able to build up a tentative picture of what happens from the time an area is burned over to the time when it is again a mature forest.

While carrying on this work the writer has also been making stomatal counts of the Ribes species to determine the effect of soil, moisture, light and other environmental factors on the number of stomates per unit area of leaf surface for a given species. Primarily, however, an effort is being made to establish a correlation between the number of stomates per unit area of leaf surface for each species of Ribes and the susceptibility of that species to infection by the disease. Evidence already obtained seems to indicate the probabilities of such a correlation.

ECOLOGICAL WORK IN OREGON

L. N. Goodding

During the month of July twelve ecology plots were finished in the Still Creek area. These plots were each carefully staked, location indicated on a map of the area, and careful notes taken concerning each plot and its object.

In addition to these permanent plots, numerous scouting trips were taken, the objects of which were to secure data of a more general nature concerning Ribes distribution, etc., and to secure more exact data concerning growth habits, etc., of different species of Ribes. These scouting trips covered much of the area immediately adjacent to the Still Creek planting area and also the regions along the Mt. Hood Loop road, Lost Lake road, Crater Lake Meadows region, upper part of Salmon River, Mud Creek, and near the Breitenbush River between Breitenbush Hot Springs and Mt. Jefferson, in the Santiam Forest. This last region includes another white pine planting.

AN UNDETERMINED RIBES

H. N. Putnam

There are now two known locations of an undetermined Ribes in northern Idaho. One of these is on the Pend Oreille National Forest, on a branch of Lightning Creek, at an estimated elevation of 4200 feet.

The other location is on the Coeur d'Alene National Forest near the outlet of Revett Lake, only a couple of miles from the Montana line, and east of Murray, Idaho, about 12 miles. The estimated altitude is 4000 feet.

The situations of these two areas are similar, in that both are at relatively high altitudes, on cascades of small streams. In each case the plant was found associated with R. lacustre.

As observed, this plant grows over the rocks in dense masses, consisting in many branches, one to two feet high, ascending from trailing stems which form roots. The fruit, covered with stalked glands, is born on last year's growth.

The raceme is 1½" to 2" long, sepals distinct, white to pale rose colored, not over 1/8 inch long. Petals very much smaller, interspersed with sepals, and are deep rose, or dark red in color.

Leaves are smooth on both surfaces, somewhat broader than long. There are a few long hairs near the base of each leaf stem.

This plant has many of the characteristics of Ribes coloradense. Final determination may prove it to be this species.

RECONNAISSANCE

Montana: During July 70 sections in the Kootenai National Forest were completed. 43 sections intensively and 27 sections extensively.

Idaho: The reconnaissance crews working on Federal land completed 344 sections on the St. Joe, 95 sections on the Pend Oreille, 81 sections on the Kaniksu and 116.5 sections in northeastern Washington, making a total of 636.5 sections completed during the month. Sixteen per cent of this work was intensive and the remainder extensive work.

The crews working on private land completed 45 sections on the Clearwater Timber Protective Association, 111 on the Pend Oreille, 43 on the Potlatch, 65 on the Priest Lake and 32 on the Coeur d'Alene, making a total of 286 sections.

California: Reconnaissance in California has been made in the territory between the middle and north forks of the Stanislaus on 28 sections and on 10 sections in the Clavey Creek--Jawbone Creek drainage. Fifty sections were done extensively.

NOTES

Mr. Bedwell has recovered sufficiently from his accident so that he is now on duty at the office.

* * *

Mr. Wyckoff and Dr. Hubert spent the first to the tenth of August in California. They spent most of their time at the eradication camps.

* * *

Mr. Benedict closed the eradication camp in California on August 13th. He will remain in the region until about September first finishing up some details.

* * *

Mr. Wyckoff spent the 15th to the 17th of August in the eradication camps in Idaho.

* * *

Mr. Goodding was in and out of Spokane during the week of August 15th to 20th. He is inspecting the ecological, chemical, and experimental Ribes eradication work that is being done in northern Idaho.

* * *

Mr. Detwiler has notified the Spokane office that he is on his way West. He is expected at any time although the exact time is not known.

* * *

Born to Mr. and Mrs. C. C. Strong, a girl, on August 18. We extend our hearty congratulations to the happy parents.

* * *

Born to Mr. and Mrs. P. E. Melis, a girl, on August 4. This is number two for the Melis family. We extend our congratulations.

* * *

Mr. Benedict accompanied Mr. d'Urbal from California to Spokane, arriving here on August 20. After inspecting the eradication work in Idaho, Mr. Benedict will return to finish his work in California.

* * *

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Vol. 2. September 15, 1927 No. 9

BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

* * *
Confidential
* * *

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U. S. Department of Agriculture
Western Office of Blister Rust Control
Spokane, Washington

EXPERIMENTAL RIBES ERADICATION IN CALIFORNIA

This project was carried out on the Stanislaus National Forest. Work was started on May 18th and discontinued on August 13. The following table gives the approximate results of the season's work.

Eradication Type	Acreage	% of Total Acreage	G. roezli	R. nevadense	Total	Ribes per Acre
Sugar pine-yellow pine mature	998.9	27.2	6,264	401	6,665	6.7
" " " " cutover	1,213.3	33.1	44,185	1,011	45,196	37.3
" " fir mature	337.5	9.2	11,082	757	11,839	35.1
" " cut-over	898.9	24.5	97,989	7,696	105,685	117.6
Stream-mature type	123.6	3.4	3,337	5,309	8,646	69.9
" cutover "	95.2	2.6	27,339	51,076	78,415	823.7
Total	3,667.4	100.0	190,196	66,250	256,446	69.9

Last year 3,134 acres were eradicated with an average of 59 Ribes per acre.

EXPERIMENTAL CHEMICAL ERADICATION

Experimental chemical eradication has consisted of three types of work during August. (a) Experimental testing of new chemicals at Santa, Idaho. During August, 35 spray formulae were tested. (b) Crew work at Bovill, Idaho. An additional 6-7/8 acres of Ribes peticlare swamp were sprayed during the first part of the month. (c) Experimental work with power equipment at Clarkia, Idaho.

Several days were spent in trying out various combinations of hose lines and volume discharge and pressure tests were made using hose lengths varying from 50' to 700'. Location and set up of the pumper, length of hose lines, handling of lines over areas, relative lengths of main line and laterals, hose couplings, number of spraying nozzles, ground to be covered by each spray line, handling chemical, making up solutions and keeping the solutions in the supply reservoirs, moving equipment from one set up to another, and combinations of two or more pumpers for spraying and relaying chemical, were among the salient points worked over and discussed.

INFECTION STUDIES IN WASHINGTON

Infection studies in western Washington have been carried on since late in July. Scouting has been done in nearly all of the counties west of the Cascades. Regarding the general condition of infection, Mr. Putnam reports as follows:

"There was a widespread infection chiefly from two well established pine infection centers; (1) Kitsap County in the general vicinity of Bremerton; and (2) Kendall-Maple Falls area in Whatcom County; and the Upper

Skagit River in Skagit County. The pine infection near Mt. St. Helens in Skamania County is a young infection. Cankers younger than fruiting are very numerous and in another year or two will be a nearby source of aecia to establish infection in the Wind River region of Washington and in Oregon.

"Infection on Ribes was very spotted and scattering, with little evidence of much uredinial intensification, except in the immediate vicinity of infected pines."

The two following tables give a summary of the findings:

County	Pine Infection				Ribes Infection			
	No. Locations Inspected		Trees		No. Locations Inspected		Ribes	
	Healthy	Inf.	Healthy	Inf.	Healthy	Inf.	Healthy	Inf.
Chelan	3	0	118	0	4	0	64	0
Clallam	17	9	314	28	39	17	993	66
Cowlitz	1	0	4	0	18	2	684	3
Grays Hbr.	17	1	452	1	28	2	771	7
Island	1	0	30	0	0	0	0	0
Jefferson	10	3	329	3	18	11	1,070	56
King	4	0	203	0	19	6	1,372	10
Kittitas	4	0	116	0	2	0	85	0
Lewis	13	0	1,054	0	40	5	1,103	33
Mason	10	1	582	4	14	10	724	23
Pierce	19	0	394	0	26	3	790	4
Skagit	5	6	556	10	3	17	383	42
Skamania	8	1	1,394	14	5	1	181	109
Snohomish	13	1	364	3	26	17	3,355	34
Thurston	0	0	0	0	1	1	44	25
Whatcom	10	17	1,589	145	10	31	903	109
Kitsap	11	8	839	77	7	18	268	103
Clarke	1	0	10	0	4	0	157	15
Total	147	46	8,348	284	264	141	12,947	639

RIBES INFECTION BY SPECIES

Species	Total Inspected	No. Healthy	No. Infected	Percent Bushes Infected
R. nigrum	61	42	19	31.4
R. bracteosum	11,535	11,102	433	3.75
R. laxiflorum	293	191	102	41.0
G. divaricata	361	324	37	10.3
R. sanguineum	529	498	31	5.9
R. lacustre	637	623	14	2.2
G. lobbii	54	53	1	1.86
R. vulgare	19	17	2	1.06
R. viscosissimum	62	62	0	0.0
R. acerifolium	35	35	0	0.0
Total	13,586	12,947	639	4.93

OBSERVATIONS IN MONTANA

C. R. Stillinger

The following notes were made as a result of recent observations made in northwestern Montana, on a trip which covered the territory from Missoula, to Kalispell to Belton, north of Belton six miles, to Troy by the northern route via Olney, thence south to Libby and Noxon into Missoula, thence west via Haugan, to the Idaho-Montana line.

Grossularia inermis was found to be general in abundance in Stream and Swamp types as well as in rocky hill sides over the entire territory. At Haugan and on the east shores of Kalispell Lake and near Olney, large, typical bogs of Swamp type occur in which G. inermis is very abundant. It is generally associated with Alder, Willow and Crataegus but in the northern part of the territory it is associated chiefly with a bush growth of birch (Betula elrodiana).

Ribes petiolare was not as general in its occurrence, and was not found in the northern half of this territory. It was found in small amounts along Kalispell Lake and on Anaconda Creek north of Belton. At Haugan, Montana, it is very abundant growing in great masses in the boggy stream bottoms. Its upper limit coincides very closely with that of the white fir (Abies grandis).

Ribes lacustre, although not noted in any quantity, was observed quite frequently over the entire territory.

Ribes americanum was observed only once during the trip, that is near Dixon, Montana. It was growing in a much dryer site than is typical for R. petiolare, that is, in a pasture land type associated with brush which was 90% hawthorn, Crataegus williamsii. The difference in texture and color of the leaf, upright habit of growth, drooping fruit racemes, and general tendency to grow where it can obtain more light, that is, in the open places in the brush, makes it very distinct and readily distinguished from R. petiolare.

The surrounding hills were covered with Douglas fir-larch type. Some fine stands of white pine were observed both mature, pole and reproduction types. However, in general, the white pine over most of the area is limited to stream bottoms and the lower edge of the associated slopes and is found only in a few sections in a locality.

Observations which were made at Olney, near Belton, and about 6 miles south of Troy of the relation of jack pine, Pinus contorta, and white pine reproduction were especially interesting. At these places there originally existed a dense stand of jack pine. At present these trees are about fifty feet high and the stand is gradually being opened up due to the age and consequent windthrow of the trees. As these stands open up, there appears a typical white pine type of from five to seven hundred trees per acre, varying from five to twenty-five years in age. White pine occurs from 50 to 400 per acre. In some cases, especially the area south of Troy, the presence of the seed can be accounted for, because the valley on each side of this jack pine plot is covered with a

mature white pine type. In the other areas no white pine was noted for long distances from the areas in question. There appears to be no explanation as to the origin of the seed for the white pine type which is being re-established on some areas.

This same condition has been observed in some places in the Clearwater country, in the upper Priest River country, and in the vicinity of Metaline Falls, Washington. It appears that the jack pine acts as a nurse crop of some burns. In its early stage of growth the jack pine grows so thick that it appears to prevent the re-establishment of any other type until it is in a decadent stage and begins to windthrow. No Ribes were observed in this jack pine-white pine type.

It was noted that the general type over this entire region is larch-Douglas fir. Over the northern half of the territory the balsam fir, Abies balsamea, is abundant but Abies grandis is absent. In the southern half of this territory the Abies balsamea disappears and Abies grandis takes its place.

Over the entire territory "Flags" of dead branches on these firs are abundant. The branches were being killed apparently by a fungus which cankers the branches. The same canker also occurs in the vicinity of Bovill, Idaho It is being studied by the Office of Forest Pathology. The fungus has been designated as a Phomopsis but the species has not yet been determined.

Damage to white pine by the woolly Aphis Chermes armiger was observed in each place where white pine was observed. Many of the younger trees are being killed while many of the trees about 25 years old are being badly devitalized. The needles of the older trees are severely attacked causing 75% defoliation some seasons, but the trees recover the following season, showing little effect of the previous season's attack. Next to the white pine, the larch is most severely hit, although it is not so generally attacked as the white pine The same insect was found occasionally on the needles of the Douglas fir, Spruce and Balsam fir, but in these cases very little damage was evident.

RECHECKING ERADICATION WORK IN OREGON

Mr. Pendleton reports the following:

"The 1/10 acre G. klamathensis plot was made an object of special study and was gone over very thoroughly by the crew. The following Ribes were found:

1927 Seedlings		1926	1925	Crown	Layer	Man
Alive	Dead	Seedlings	Missed	Sprouts	Sprouts	Days
1846	138	4	4	24	8	7

"It is interesting to note that in this plot the majority of

the seedlings did not start until the second year after eradication. There were but a few hundred bushes found in this plot in 1926 check. The crown sprouts were for the most part '26 sprouts that were overlooked in 1926 check as the plot was not checked as thoroughly last summer.

"From the 10th to the 31st of August a total of 19 blocks in this area have been checked, and the crew has started work on four others that are not yet finished. This work represents an area approximating 225 acres, being distributed over the various blocks as conditions deemed advisable. A total of 1200 Ribes have been pulled other than those found in the klamathensis plot. Results of the work to date indicate that the crowns of Ribes bushes must be carefully removed in eradication as about 30% of the bushes found have been crown sprouts. Probably 60% of the bushes found are 1925 missed bushes. R. lacustre and G. klamathensis are very much inclined to layer sprout if pieces of the bushes are left lying on wet ground. A few seedlings of R. lacustre and G. klamathensis were found but in general the number of seedlings found is much less than expected. The large number of seedlings klamathensis in the plot might be accounted for by the fact that this area was rather thoroughly torn up with grub-hoes during the eradication."

BLACK CURRANT ERADICATION

Cultivated black currant eradication in southern Idaho resulted in the completion of this work for the state about August 15. For the balance of the month rechecking was carried on in counties which had been previously worked. The results for the month of August are as follows:

County	Plantings Eradicated	Plants Eradicated
Bannock	3	23
Bear Lake	4	35
Franklin	65	551
Fremont	20	126
Oneida	82	755
Total	174	1490

Washington. Cultivated black currant eradication was conducted in Chelan and Kittitas counties during August. A total of 36 plantings, representing 141 bushes were eradicated. The report states that very good cooperation was given us by all newspapers and field contacts indicated that 75% of the people had read articles run by the newspapers.

California. During the month 24 plantings consisting of 100 bushes were eradicated. A recheck of 72 places in Siskiyou and Humbolt counties showed 8 cases of resprouting.

EXPERIMENTAL RIBES ERADICATION IN IDAHO

Experimental Ribes eradication on the Coeur d'Alene National Forest resulted in the working of 7434.8 acres, during August. The average number of Ribes per acre, 188.7 in June and 117.2 in July, has dropped slightly to 112.5 for August. The following tabulation gives the results of the work:

Type	Acreage	Percent of Total Acreage	Ribes Pulled				Ribes per Acre
			R. lacustre	R. viscos	G. inermis	Total	
Dense Mature	1,143.5	15.4	27,225	3,042	-	30,267	26.5
Open Mature	2,800.2	37.7	134,628	12,935	68	147,631	52.7
Dense Pole	283.0	3.8	7,000	121	-	7,121	25.2
Open Pole	622.8	8.4	8,186	555	-	8,741	14.0
Dense Reproduction	555.3	7.5	14,060	20	-	14,080	25.4
Open Reproduction	454.5	6.1	67,823	-	-	67,823	149.2
Cutover Mature	1,193.3	16.0	353,867	56,453	1,698	412,018	345.3
Stream	381.7	5.1	134,732	85	12,166	147,013	385.2
Swamp	.5	-	-	-	1,450	1,450	2,900.0
Totals	7,434.8	100.0	747,551	73,211	15,382	836,144	112.5

ECOLOGY STUDIES

All of the burn and growth study areas begun in 1926 were rechecked, except for (1) Emida Burn #1, (2) the G. inermis growth study, and (3) Meadow Creek Burns #1 and #2.

Several studies of Ribes conditions along new roadsides were made to considerable detail.

Several thousand acres of burned and unburned areas in the Kaniksu and Pend Oreille Forests were carefully examined as to Ribes conditions. All incomplete germination plots were finished. Three additional sets of plots were completed during August. Several man-days of the entire personnel were spent gathering Ribes fruits and drying the same. Several man-days were spent gathering Ribes leaves for winter study. Odd hours and parts of days during the entire month were spent on the leaf area-live stem ratio study.

Several new burn study strips in new areas not previously studied, have been established. One cutover area on which the brush was piled and burned was studied in detail. Four sets of root competition plots were established. Study plots of the new seedling germination on 1926 eradication areas were established on G. inermis and R. lacustre sites.

Planting plots were established where Ribes seed were planted in Ribes-free areas to see whether soil conditions or absence of seed made the area Ribes-free.

RECONNAISSANCE

California. Field work on reconnaissance in California was completed about August 13. During August 32 sections were worked intensively and 24 extensively. This makes a total for the field season of 1927 of 116 sections worked intensively, and approximately 100 sections worked extensively.

Montana. During August 48 sections were worked intensively and 34 extensively. This makes a total for the field season of 118 sections worked intensively and 61 sections extensively. This work was done on scattered areas in the Kootenai and Cabinet national forests.

Idaho. Control reconnaissance on Federal lands during August has resulted in the following:

National Forest	Sections Reconnaissanced		
	Intensive	Extensive	Total
Pend Oreille	10	66	76
Kaniksu	15	105	120
St. Joe	54	152	206
N.E. Wash. *	10	234	244
Total	89	557	646

* Survey of scattered white pine stands in northeastern Washington.

Cooperative work on private lands has resulted in the following control reconnaissance during August:

Association	Sections Reconnaissanced		
	Intensive	Extensive	Total
Clearwater	16	23	39
Potlatch	22	23	45
Coeur d'Alene	16	17	33
Priest Lake	43	45	88
Pend Oreille	35	73	108
Total	132	181	313

* * *

Mr. Kenyon and Mr. Benedict spent the latter part of August investigating the area upon which it is expected to do experimental Ribes eradication work next year. Up to September 3, 10,000 acres had been traversed for the 1928 season. The area has a very small amount of brush and stream type and has no cutover area. About 1200 acres contain dense Ribes growth while the remainder of the area has very few Ribes.

IMPRESSIONS OF THE HIGH SIERRAS

Ernest E. Hubert
(Cooperative Agent, School of Forestry, University of Idaho.)

Bright sunlight, heat, dust, Paul Bunyon currant bushes, tall trees, odor of bear clover, thorny brush, genial blister rusters, good grub, presence of civilization, these are flashes of impressions left with me after a highly interesting and very pleasant trip to Benny's eradication camp in the high Sierras of California. With "Steve's" good company and excellent travelling advice I landed in the camp along the north fork of the Stanislaus River just in time to join the crew in a mad stampede for the supper table. Later with a real meal under our belts and our beds made on cots placed in the main room of the new building constructed for the Forest Service investigative staff we felt we were off to a good start.

George Root joined the exploring party at Sonora and Mr. D. Dunning of the Forest Service furnished many data on the history of the stands visited. During the three days spent at the camp the most representative areas were examined and several photographs and much information were obtained.

Trying to absorb all the details of value in an ecological study of the sugar pine region and at the same time sidestep "rattlers", worm through spiny ceanothus and giant Ribes bushes and slide and stumble through the malodorous bear clover is an experience that can only be found in sunny California. In my absorption of details I heard Benny say "Here's our famous R. nevadense, Doc." I glanced around at my feet and suddenly awoke to the fact that Benny was pointing over my head. Such is the effect of climate, or is it California!

The sugar pine area in the Sierras is so different from our Idaho white pine stands that practically all of the main factors influencing the invasion and establishment of Ribes species on cut-over or burned-over areas in California must be considered in a different light. With open stands, the veteran Ribes bushes persist in the mature forest and when the stand is cut fruiting is greatly stimulated and the cut-over area soon supports an all too dense population of seedlings. In searching for the easiest and cheapest method of eradication much must be learned of the life history of the Ribes in relation to methods of cutting and methods of brush disposal. The factor of fire does not appear to hold the importance in the California studies that it does in the Idaho region. However, in some of the sugar pine areas tractor skidding is a new factor and will have to be considered since this method results in a very noticeable disturbance of the forest soil, and in some cases an almost complete removal of the portion of the brush above ground. Though the live stems may have been destroyed by the logging operations the revival of the uninjured root crowns of Ribes species remaining in the loose soil must be taken into consideration and this along with other observations point to an eradication of the Ribes on the proposed cutting or sale area before logging takes place. Whether or not Ribes seeds are stored in the duff, the ages at which the different Ribes begin to produce

fruits, and the amount of Ribes reproduction that may be expected on a cut-over or burned-over area are questions that need to be answered in order to simplify the eradication work.

We were shown some interesting experiments that demonstrated the value of removing the root crown in grubbing out a Ribes bush. Where root crowns were carefully removed no new shoots appeared this season but in many cases where the crowns were not removed they bore husky shoots of new growth. Incidentally I tried arching my back against a mature G. roezli bush and only succeeded in loosening the sand around the root crown. Water must be a long ways down to cause the roots to burrow so deeply.

An opportunity was also afforded to examine, growing along a flume, a number of large bushes of G. roezli and R. nevadense which had been treated several days previous with chemicals. All of the foliage had been killed and the plants appeared to be "on their last legs". I was impressed with the fact that bushes several feet from the flume had been successfully treated from the flume top. Sprayed bushes of R. nevadense were also examined at the Leland Meadows area but these had but recently been treated and showed only minor injury.

The scarcity of coniferous reproduction on the areas studied was startling. Having come direct from a trip into the Coeur d'Alene National Forest where young seedlings were coming up almost as thick as those of R. viscosissimum on the newly burned or logged areas, the few seedlings of concolor fir and of incense cedar seemed unusual. During the trip I was able to find but one seedling of sugar pine of this year's germination.

I could not close this rambling account without mentioning the treat given us by members of the camp on the occasion of their farewell party to certain members who were leaving for home. An interesting entertainment was staged under the trees the evening of August 4th. Clever pantomine and many local hits were presented for our approval not to mention the watermelon feed that followed. We enjoyed it thoroughly and crawled into our blankets with the refrain of the main chorus pleasantly running through our minds:

"We are the Ribes Boys, the Ribes Boys are we,
We come into the mountains to save the white pine tree."

* * *

Mr. Johnson and his reconnaissance men are now making a reconnaissance of the environs of the Forest Service nursery at Haugan, Montana, preparatory to eradication work in order to protect the white pine grown in the nursery from blister rust.

* * *

All reconnaissance work was ended on about the 15th of September and all of the leaders are now busy in the office compiling the summer data.

DO GROUND SQUIRRELS EAT RIBES FRUITS?

R. A. Pendleton

This is a question that has been pondered over considerably by blister rust workers and until recently no definite data has been obtained.

It has been the privilege of the writer to have made some observations along this line that may be of interest.

During the summer of 1926, while doing eradication work in California, a considerable quantity of G. roezli fruits were gathered and spread on a paper in the tent to dry. In the course of 2 or 3 days the chipmunks had either eaten or carried away the entire lot. Out in the field the numerous empty hulls of G. roezli could be found under the bushes.

More detailed observations were carried on in the Prospect, Oregon, territory this summer. I not only saw chipmunks eating the fruit of G. cruenta but observed the manner of their eating and obtained some photographs of one while he was eating. The chipmunks were not seen to carry away any of the fruit but sat in the bush eating out the meat and dropping the empty hulls on the ground. Empty hulls have been found under the bushes of G. binominata and G. lobbii indicating that the same animal also eats the fruits of these. They do not appear to be very fond of G. lobbii but will eat the fruits on occasions.

Work at Prospect included the planting of some small plots of ground to various kinds of Ribes fruits. On one of these plots a few days after planting, we noticed that a great many of the fruits had been dug up by some animal and the heart of the fruit eaten out. Although chipmunks were not seen doing this, evidence points very strongly in their direction. This planted plot included the following species R. viscosissimum, R. sanguineum, G. lobbii, G. cruenta, G. binominata, and G. klamathensis; and all species had apparently been dug up to some extent.

* * *

Recently Mr. Root sent in some very good pictures of old buildings made of sugar pine in California. Some of these buildings have been constructed for 50 years and the timber is still in good shape.

* * *

Mr. Root is preparing a demonstration for the Fresno fair, and one for the Yosemite National Park.

WILL YOU SELL ME SOME CONES?

George A. Root

The mammouth sugar pine cones from 12 to 18 inches long are the delight of thousands of tourists who wander in the high Sierras. Many are gathered to furnish fuel for camp fires, but good specimens are often taken for decorative purposes to be placed in homes far from the habitat of these cone bearing trees.

While standing alone near the desk of the Park Naturalist in the Yosemite Museum, I was approached by a little girl, about 12 years of age in company with an aged grandmother. With eager face she asked if sugar pine cones were sold here. Several were hanging on the wall nearby. Taking the responsibility of telling her that they were not for sale, a look of disappointment came over her face. Wishing to please the little girl, but not knowing just where several could be procured at that instant, and they having to make a hurried departure from the Park, it occurred to me to send several to her home.

By this time sugar pine cones are probably gracing the home in Colorado Springs, Colorado, and sugar pine is being "sold" in its vicinity.

MORE WHITE PINE FOUND IN OREGON

Mr. Goodding reports the following with reference to new areas of white pine which he recently discovered:

"I made a special trip into the regions about Crescent and Odell Lakes to study white pine there. The country is for the most part grown up to a dense stand of lodgepole pine but in places western white and sugar pine occur in some abundance. That about Crescent Lake is mostly inferior but is much superior to the other species. The north side of Odell butte has a stand of white pine which is conspicuous from the highway to Crescent from Odell Lake. In much of this region lodgepole seems determined to be supplanted by western white pine and mountain Hemlock. This trip was continued south to Woodruff Meadows by way of Diamond Lake. Between Diamond Lake and the meadows it is surprising to note the quantity and excellence of the western white pine. As one travels northward there is an increasing amount of sugar pine."

* * *

Mr. Detwiler arrived during August and has been busy in the field inspecting the Ribes eradication work, chemical experiments and ecology projects.

* * *

During the month of August about 500 circular letters were sent out by Mr. Goodding to fire wardens in Oregon.

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Vol. 2. October 15, 1927 No. 10

BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

* * *
Confidential
* * *

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U. S. Department of Agriculture
Western Office of Blister Rust Control
Spokane, Washington

NOTES ON RIBES ECOLOGY

Ernest E. Hubert
School of Forestry-University of Idaho

In seeking an answer to the question, can Ribes be driven out of the white pine types and prevented from coming back by any reasonable method of forest management, much work has been done by the Spokane office in outlining a comprehensive working plan covering life history studies of the Inland Empire Ribes. There are many anglesto a study that attempts to correlate the data on seed production and germination, seedling establishment, and survival with the many aspects of forest management. The relation of age, class and site upon the occurrence and abundance of the various species of Ribes in itself constitutes a complex problem. However, no amount of complexity has prevented those interested in this work from initiating separate studies on the parts of the working plan that seemed to be most promising of yielding much needed information.

The results so far obtained have exceeded expectation and sufficient reliable data have been gathered to indicate that ecological studies may help materially in solving the problem of blister rust control in this region. Data collected by the Spokane office show that in mature or near-mature well-stocked stands the Ribes population reaches its minimum density. However, any appreciable disturbance of the conditions which brought about the gradual elimination of the Ribes plants has usually resulted in restoring the Ribes on a rather alarming scale. Fire, insect and fungus attack, logging operations and construction work such as highway and railway operations have been observed to cause this abrupt change from an almost total absence of Ribes in the undisturbed stand to a crop of seedlings running into the thousands per acre on the disturbed areas. These facts led to the study of spot burns or Class A and B fires of recent origin in the western white pine areas of northern Idaho.

The work on spot burns conducted by Rockie and Large in 1926 indicates that R. viscosissimum seedlings may be expected to appear the first and second years following the fire in numbers ranging from none on the heavily burned spots to 75,000 per acre on the edges of the burn. A few of the Ribes on these areas were R. lacustre but the greater portion, from 90% to 95%, were R. viscosissimum seedlings. The data indicate an apparent relationship between the number of Ribes seedlings and the intensity of the burn, a fact which needs to be corroborated in future field studies for much may depend upon this information when various methods of burning brush are considered.

What is the source of the 75,000 Ribes seeds that were present in the burn studied? How did so many seeds come to be scattered with fair uniformity over the lightly burned portions of the area? If disseminated by birds or animals after the fire how account for this concentration on certain spots? Reference to literature gives us the fact that most Ribes seeds require a resting period of from two to eight months, depending upon the species,

before germination takes place. In order to test the resting period of R. viscosissimum several fruits were collected in 1926 and attempts made throughout the winter to germinate them. Various methods were tried. Some of the seeds were exposed to the elements, others were kept in the laboratory, some were exposed for an hour and fifteen minutes in a drying oven at a beginning temperature of 70 degrees C. and an end temperature of 90 degrees C. From September 24, 1926 to April 22, 1927 no results were obtained. On April 25 germination commenced but only in those groups of seeds that had been exposed to oven temperatures. A resting period of eight months for this collection of seeds is thus indicated, but a more important result is seen in the effect of temperature and the possible relation to the heat of forest fires.

A further study of germination is in progress in which Ribes seeds collected from herbarium specimens are being tested. Most of the herbarium collections are five to six years old and have not been disinfected. To date but one collection of seeds has shown any viability. Up to April 28, forty per cent of these have germinated and developed healthy seedlings. This collection of R. viscosissimum seeds was made on July 21, 1922, in Clearwater County, Idaho.

These preliminary tests on germination and viability lend encouragement to the theory that germination on the spot burns is from seeds accumulated in the duff and not from seeds deposited on the burns after the fire.

ERADICATING LARKSPUR PAYS WELL

George A. Root.

Of general interest to blister rust workers is information contained in the following article taken from a recent issue of the Official Record:

"Eradication of tall larkspur, a western range plant poisonous to livestock, has passed beyond the experimental stage, and has been extensively done with beneficial results on the national forests, says the Forest Service. Over a period of several years, larkspur was eradicated from a total of 7,250 acres at an average cost of less than $5.50 per acre. An additional 8,300 acres where larkspur occurred in small quantities was cleared at a cost of about 20 cents per acre. The total cost of this larkspur eradication was $38,287, more than half of which was paid by interested stockmen. The estimated annual reduction in loss of livestock as a result of the work has been more than $65,000. There have been but few projects where the value of the stock saved has not been sufficient in one year to cover from one-third to twice the cost of eradication. The most practical means of eradication has been found to be that of grubbing with a specially constructed, long-blade mattock."

It will be noted that the costs are not so widely divergent from those of Ribes eradication and that the mattock plays an inportant part in the actual removal of the plants. This should be of interest to California workers.

SOME OBSERVATIONS ON CHEMICALLY TREATED R. NEVADENSE

George A Root

The heavy growth of R. nevadense within the eradication area along the Stanislaus River in California afforded an excellent opportunity for the use of chemicals. Fully two months ago these bushes were sprayed with sodium chlorate. Shortly after, the leaves turned brown and all indications pointed that these bushes were "hors de combat". Many were four and five feet high with a considerable circumference. On September 19, the writer in company with H. G. Lachmund, inspected these bushes and found that sprouts were coming up from the crowns. These sprouts were about 4 inches high. About a dozen bushes were examined of which eight showed these sprouts. Whether this sprouting represents the last remnant of vitality (the cambium layer seemed affected to the base of the bush) or is a general rejuvenation with ultimate recovery is a matter interesting to watch.

MEMBERS WANTED FOR LOYAL ORDER OF WOODPECKERS

Roy Calhoun

You will be interested in the following extract from an address of the Director of the Bureau of the Budget at the thirteenth regular meeting of the Business Organization of the Government June 10, 1927.

"We have 546,000 people on the Government's active pay roll. I wonder how many of these, or how many of you gathered here, can look back on the year just closing and point to a definite economy, a concrete saving, a constructive thing performed during the period in the Government's interest, in addition to or outside the regular routine service which we may assume has been rendered.

"A speaker was lecturing on forestry. 'I don't suppose', said he, 'that a single person here has ever done anything to conserve our valuable timber'. A moment of silence, and then a meek-looking little man in the rear of the hall arose and said, 'I once shot a woodpecker'. We need a woodpecker club in the interest of a 100 per cent commitment of the people in the service to a crusade for small savings -- a sort of shrapnel attack on that $45,000,000 for which we will be gunning next year.

"The Budget Director herewith challenges the people in Federal employ to solemnly pledge themselves to make some definite saving in the fiscal year 1928. It may be conservation of Government time, it may be more economical use of Federal supplies, it may be actual saving in money. It may be big, it may be little, but, big or little, it will be voluntary and will constitute a free-will offering to our economy and efficiency campaign. In the interest of those who may have no opportunity to do big things but who, like the man who killed the woodpecker, are desirous of making some sort of a showing, of making some sort of a contribution to the cause, the Loyal Order of Woodpeckers is herewith in-

augurated. It will embrace in its membership all those who definitely determine to do something more than perfunctorily to perform their usual and routine duties. An average annual saving of $1 on the part of the 546,000 active Federal employees will mean more than a half million dollars saved. Those who enlist in this worthy cause will find recognition in the satisfaction that comes from faithful, honest effort, and can wear in their own consciousness the insignia of patriotic intent and the service medal of duty well performed.

"All hail to the Loyal Order of Woodpeckers, whose persistent tapping away at waste will make cheerful music in Government offices and workshops the coming year. No reports will be required and only such records kept as the agencies themselves think necessary or desirable. The only requirement is that Federal executives see to it that this patriotic opportunity be brought to the attention of every person on the active Federal pay roll. It is requested, however, that if any department, establishment, bureau, office, or other organization achieve a 100 per cent enrollment the Budget Director be notified. I am confident if these things be done, the humble woodpecker will be given place in history as symbol of a great national thrift crusade."

Please send to Roy Calhoun, 618 Realty Bldg., Spokane, Wn., at any time, suggestions of savings effected for our quarterly report of economies to the Department.

IDAHO ESTABLISHES A BLISTER RUST CONTROL AREA

The issuance of Quarantine No. 10 of the State Department of Agriculture of Idaho on August 4, 1927, establishing a blister rust control area in northern Idaho appears to have been an act almost in anticipation of the finding of the rust near Priest River, Idaho, in September. Idaho is the first state in the West to establish such a control area. Since lumbering is the leading manufacturing industry in Idaho, and the white pine industry represents over one-fourth of this industry, the issuance of this quarantine in order to protect the white pine from blister rust is timely action.

According to this quarantine, the further planting, propagation, possession, sale or transportation of any currants or gooseberries in the quarantined area is forbidden. The quarantined area consists of all of northern Idaho which is adapted to the growth of white pine. Further, it is now necessary in order to ship any currants or gooseberries into Idaho, to obtain a permit from a Federal inspector. This Federal inspector is generally the chief inspector of the state. Although definite action has not been taken, this Federal inspector will probably be Mr. M. L. Dean, Chief, Bureau of Plant Industry, Boise, Idaho. All requests for permits should be sent to him.

Following is an exact copy of the blister rust quarantine of Idaho:

STATE DEPARTMENT OF AGRICULTURE
BOISE, IDAHO
QUARANTINE ORDER NO. 10
(New Series)

PERTAINING TO WHITE PINE BLISTER RUST

WHEREAS, the fact has been determined that the dangerous and injurious disease to white pines known as white pine blister rust (Cronartium ribicola, Fischer) now exists in Washington, Oregon and British Columbia, and

Whereas, this disease is not known to occur in the State of Idaho, but threatens

WHEREAS, it has been determined that to spread into and become established in the State of Idaho, and currant and gooseberry plants (Ribes and Grossularia) are the alternate host plants of this disease, and that the occurrence of these plants in the white pine growing region of Idaho constitutes a distinct menace to the white pine forests,

NOW, THEREFORE, I, J. S. Welch, Commissioner of Agriculture of the State of Idaho, by virtue of the authority vested in me by Chapter 222, Idaho Compiled Statutes, do hereby order and declare, that, in order to protect the five-leafed (white) pines in Idaho from infection by the white pine blister rust, that portion of Idaho lying north of the following line is established as a blister rust control area, to-wit: Beginning at the Idaho-Washington state line at the Northwest corner of Township line between townships 39 north and 40 north to the east line of Range 4 west; thence south along said range line to the south line of township 39 north; thence east to the branch of Potlatch Creek on the line of the Northern Pacific Railway approximately in Sec. 33, T. 39 N., R. 3 W; thence in a general southernly direction down said creek and main Potlatch Creek to its mouth at Arrow Junction on the Clearwater River; thence east and south along the Clearwater River to the point where said River is intersected by the south line of Township 31 N.; thence east along said township line to the south boundary of the Selway National Forest and east along said National Forest Boundary to the Idaho-Montana line. And a quarantine be and is hereby established against possessing, propagating or planting any currant or gooseberry plants in said area or transporting within said area any such plants, the shipment of which originates therein, or transporting into said area any currant or gooseberry plants, the shipment of which originates in any other part of the state.

All horticultural inspectors are hereby ordered and instructed to intercept, condemn, destroy or return to the shipper any currant or gooseberry plants transported, propagated, planted, or in possession within said district, or being transported from any other district in Idaho into said district. Any violations of these orders will be dealt with according to law.

This order shall take effect and be in force on and after the 4th day of August, 1927.

(Signed) JOHN S. WELCH,
Commissioner of Agriculture.

Approved: H. C. Baldridge
Governor.

RIBES VISCOSISSIMUM

W. A. Rockie

Ribes viscosissimum apparently has a very spotted distribution. The eradication area of 1927 generally showed very few of this species, while the slope toward Lake Pend Oreille, 10 miles to the north, has an abundance of this plant.

This apparent difference may not be what it seems, however, for R. viscosissimum occurs only in the recent burns on the Lake Pend Oreille slope. The older stands do not appear to have this species. This slope is dominantly one of recent burns, however, so that R. viscosissimum appears to be general for the entire area.

The opposite slope which drains into the North Fork appears, from the 1927 eradication, to be generally without R. viscosissimum. Upon further investigation, however, it develops that R. viscosissimum occurs in each recent burn or logged area. This North Fork slope is dominantly of mature timber, so that this probably explains the few R. viscosissimum.

It now appears that this explanation may hold for the Idaho pine region generally. Some areas of recent fire appear to be without R. viscosissimum, but they are the exception, and not the rule.

Ribes viscosissimum appears usually to drop out of the vegetative cover within a relatively short period of years following its inception, and therefore presents a problem only during the earlier years of the timber cycle.

ENEMIES OF RIBES BRACTEOSUM

L. N. Goodding

Ribes bracteosum, which is the nigger in the woodpile in the spread of blister rust in many places has some enemies in Oregon. The beaver uses it for his vitamine salad and persistently crops it down close to the roots where it occurs next to his stream holdings. In places the short pieces have lodged and once more taken root, but observations on Crater Creek seem to indicate that the bush cannot withstand the flooded conditions to which the beaver subjects it. Go to it, Paddy, you have our permission.

Another enemy of some importance is a Diaporthe which kills the canes down to the roots. This is prevalent along one entire stream which flows into Still Creek and has been observed elsewhere. It is effective in keeping down live stem though it does not seem to kill the bush outright. Dr. Zeller of the Oregon Agricultural College has been unable, up to this time, to locate this disease definitely in scientific literature.

SERVICE MEETINGS INAUGURATED

Regular weekly meetings have been inaugurated of all project leaders and monthly meetings of all employees at the Spokane office. The meetings are for the purpose of keeping the personnel of the office informed regarding current happenings as well as to obtain the best thought and advice of each and every member of the office regarding the various problems which arise from time to time. The further object of these meetings is to give everyone and anyone who has any ideas a chance to freely express himself. As a result of several meetings which have been held, it is the feeling that these meetings are well worth while and both the office and the personnel will mutually benefit by them.

The most important group meeting held thus far, was one to discuss the ten-year program of the western work, and possible revisions which should be made as a result of the spread of the disease this season. A very spirited discussion developed and some real constructive suggestions were presented for Mr. Detwiler's consideration.

THE HUNTING FACTOR IN THE DISTRIBUTION OF WHITE PINE IN THE CASCADES

L. N. Goodding

White pine grows to excellent size in the Cascades, in fact it is a very superior tree in much of the high country. Why is it so scattering in mature stands? It has been suggested that the bark beetle is chiefly responsible. Observations by the blister rust men, however, do not seem to bear this out. In the Mt. Hood Region there seems to be other enemies which are far more potent. By far the worst in the Still Creek planting area is a woolly aphis probably Chermes armiger. This miserable little pest seems to make many of the trees so sick that they die. It is also noticeable in practically all of the young stands about lakes and meadow lands where it kills many of the trees.

Another insect enemy is one which attacks the leaders and ruins the growth of the trees. This seldom kills but usually deforms the trees. This is not so prevalent as the Chermes, but in at least one locality in the Mt. Hood region it has affected 95% of the trees.

Our old acquaintance Scleroderris is abundant in Mt. Hood section and does considerable damage. It does not seem to kill the trees, usually. There may be a direct connection between this disease and an aphid which attacks the pines.

Extract from Itinerary Report of B. A. Anderson:

August 24. - Left camp 4:30 P.M. for Coeur d'Alene, with man needing chemical attention.

* * *

SCOUTING FOR THE DISEASE

Scouting for the disease in Montana was carried on during the latter part of September. During the same period, several parties were in the field scouting northern Idaho and northeastern Washington. Mr. Goodding and his assistants have scouted northwestern Oregon quite thoroughly and are now scouting in northeastern Oregon. The following table gives a summary of the results of the scouting this season:

Washington

Location	Species of Ribes Infected	No. of Bushes Infected	% of Leaves Infected
Colville, Wn. 6 mi. N.E. Stevens Co.	petiolare	1	10
" " 8 " S.E. " "	"	1	95
Kettle Falls, 25 " W. Republic Road, Wn. Ferry Co.	"	1	15
" 27 " " " " " "	"	1	20
Republic, Wn. 2 " E. "	inermis	2	15
" " 8 " S. "	petiolare	1	25
" " 4 " W. "	"	1	20
Okanogan " 1 mile S.E. Disontels, Okanogan Co.	"	2	50
" " " " " "	inermis	1	25
" " 3½ miles S.E. " "	petiolare	1	60
Cusick, Wn. 10 mi. W. Pend Oreille Co.	viscosiss.	1	15

British Columbia

Creston, B.C. 8 mi. N.	nigrum	5	20
Creston, B.C. 8 mi. N.	vulgare	1	10
Moyie, B.C. 3 mi. N.	nigrum	1	2
Yahk, B.C.	nigrum	1	0.5

Idaho

Priest River, Idaho, 7 mi. N.	inermis	1	--

Oregon

Eagle Creek, 1 mi. S. on Eagle Cr. Hood River County	bracteosum	1	10
Bonneville, ¼ mi. S. on Tanner Cr. Multnomah County	"	1	10
" 2 mi. S. on Moffett Cr. " "	"	1	20
Clatskanie, 5 mi. W. on Beaver Cr. Columbia "	"	2	10
Springdale, 5 mi. S.E. on Gordan Cr. Multnomah "	"	1	3-leaves
Corbett, 2 mi. S. on Deverell Ranch, " "	nigrum	5	25
" 3 mi. S.E. on Burkhalder Ranch, " "	"	6	25
Cascade Locks, 7 mi. S.E. on Herman Cr. Hood R. "	bracteosum	5	1

QUARANTINE

Quarantine work was started on about October 10th.

The following assignments have been made:

Spokane - Payne, MacLeod,
Seattle - Glasgow
Tacoma - Peterson
Portland - Swanson
Pendleton - Ganoung

Messrs. Goodding and Edmunds have been deputized as Federal inspectors. They will inspect the nurseries in Oregon as well as make observations on the movement of nursery stock in the quarantined area of Oregon.

Thus far only one violation of Federal Quarantine No. 63 has been intercepted. This consisted of a shipment of currants going from Montana into the control area of Idaho.

GERMINATION OF R. NIGRUM SEEDS

George A. Root

Reading in the August number of the Western News Letter, "Some Interesting Observations on Ribes Germination," brought to mind an observation on the germination of English black currant seeds. During a recent study on the sprouting of previously eradicated bushes, the presence of 9 small plants of black currants revealed that they had come from seed since the eradication of the original bushes, 12 in number, in 1925. These bushes had been growing in a back lot garden near a faucet which had obviously dripped for a long period as the ground nearby was thoroughly saturated. The soil was a rich, dark loam, partially shaded by an overhanging tree. The conditions were ideal for seed germination. This is the first instance of the germination of R. nigrum seeds that has come to the attention of the writer.

NOTES

Mr. Detwiler has spent the entire month of September reviewing the different phases of the western work. He is still in the West and will be out here most of October. After visiting the different phases of the work in Idaho, Mr. Detwiler did some scouting for the disease in northeastern Washington, then went to the coast, inspecting the infected areas on the coastal region of Washington and at Daisy Lake and Cheekye, B. C. He has recently been in California examining the various phases of the work there. He is expected in the Spokane office about October 28, and after spending some time here will return to Washington, D. C.

* * *

Mr. Posey expects to come West soon and give us some more of his valuable suggestions regarding our work. We always anticipate his presence.

Messrs. Goodding, Benedict and Kenyon are scouting for the blister rust in northeastern Oregon.

* * *

Mr. Putnam has been on the coast region of Washington most of October locating plots for the further study of blister rust. He also went to Cheekye, B. C. in order to inspect the experimental plot located at that place.

* * *

Plans are being made to hold the annual meeting of the Blister Rust Conference during the latter part of November.

* * *

Mr. Patty will be engaged in laboratory investigations during the winter, studying the stomata and lenticels of Ribes leaves and stems. He will also make a detailed morphological study of Ribes stems and roots.

* * *

The third number of the Summer News Letter has been prepared and is being sent to all summer employees.

The fourth and final issue of this season's summer news letter will be issued in January. This will give a complete summary of the season's work.

* * *

During the first part of September Mr. Johnson and his reconnaissance men made a thorough survey of conditions around the Savenac Nursery at Haugan, Montana, preparatory to possible Ribes eradication.

* * *

Mr. Felch, who make the trip to Europe with the American Legion, returned to duty on October 22. He reports a very enjoyable and instructive trip.

* * *

During the month, Mr. H. G. Lachmund inspected the eradication projects in Idaho and California.

* * *

Mr. Root gave a blister rust demonstration at the Fresno District fair, September 26 to October 1. Mr. Beeson was in charge of the demonstration.

* * *

Black currant eradication in California did not reveal any plantings in Fresno and King counties. The work was discontinued on September 15.

EXTENSIVE SPREAD OF BLISTER RUST THIS SEASON

Scouting for the disease which has been carried on during the summer and fall has showed 1927 to be a very favorable year for the spread of the rust. Long distance spread generally occurs in favorable years, those characterized by moist springs, which favor the infection of currant and gooseberry bushes, and summer or early fall rains, which help to intensify the rust on these or nearby bushes, and to spread it to pines.

Prior to this season, the rust had been found in considerable profusion in the Puget Sound region of Washington, in western British Columbia and in the Revelstoke to Nelson region of eastern British Columbia. In 1923 scattered infections were found on currants and gooseberries in the Okanogan region of Washington, and in 1925 in northwestern Oregon.

Because of the favorable nature of this season, an intensive scouting program was carried on. The most important results are as follows:

1. The rust has spread south from its previously known range near Nelson, British Columbia, into northern Idaho (infection found on wild gooseberries near Priest River) and northeastern Washington (eleven infections on wild currants and gooseberries found between Okanogan and Cusick), and southeast from Nelson to Moyie, British Columbia, 20 miles north of the Montana border.

2. The rust is firmly established on white pines in western Washington. Two extensive and well developed centers of pine infection exist in Whatcom and Kitsap counties. The farthest south pine infection thus far discovered is on the Columbia National Forest, just north of Mt. St. Helens.

3. The rust is rapidly spreading into Oregon. Infected currants and gooseberries have thus far been found in eight localities in Hood River, Multnomah and Columbia counties.

This scouting plainly shows that the rust is rapidly spreading toward the white pine stands of north Idaho, northeastern Washington and northwestern Montana, and also toward the sugar pine stands of southern Oregon and California.

SPREAD OF WHITE PINE
BLISTER RUST
1922.
1923.
1925.
1927.
BRITISH COLUMBIA
WASHINGTON
MONTANA
IDAHO
OREGON

11

Vol. 2 November 15, 1927 No. 11

BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

* * *
Confidential
* * *

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U. S. Department of Agriculture
Western Office of Blister Rust Control
Spokane, Washington

FAITH, LOYALTY AND COOPERATION AS COMPONENTS OF SUCCESS

S. B. Detwiler

Blister rust work has developed to a point where we are all thinking about how to develop from experimental control to actual application. The spread of the disease in this favorable year has been very large, and the public is looking to us now for ideas and plans on what to do about the control of the disease. The thing that has impressed me in the three months that I have been in the West with you is the "all-pull-together" spirit of accomplishment that marks a real working organization to get the Ribes uprooted wherever the need exists. I feel that the project leaders have put exceptional vision and energy into the development of their projects and I see more effort being made to clarify objectives and tie each project in with other projects and with the work as a whole.

We have been fortunate in that we could concentrate on our primary tasks this year without the necessity of fire fighting which has hindered the development of our projects in the past. We are working to assure adequate protection of five needle pines thro the future years. The difficult bit of work we have ahead of us now is to get the blister rust control established as a branch of forest protection on a scale that will be adequate for the period of the next 20 years, when forestry will have become better established. By that time control work will have followed along much the same road as fire protection, until it is an accepted and more or less standardized practice. It seems to me that our organization has the responsibility for leadership, and can get results if we qualify as real leaders. We shall get successful results or mediocre results, depending on our fitness for leadership. In this connection, I think of the power of words. Words carry idea-pictures with them and ideas are the power that moves the world, so far as civilization and human activities are concerned. There are certain words important in the development of our fighting organization. The first is faith. Applied to this organization, it means earnestness; confidence that we can accomplish what we have been assigned to do. When I say accomplish blister rust control I do not mean that we are actually going to supervise all of the pulling of the bushes. Those who own the land must necessarily apply the control. We are to teach them to understand the necessity for control. Leaders must have faith in what they are doing or the incentive to do is lacking.

The second word is loyalty. Loyalty is to me one of the finest words in our language. Loyalty means fighting for your faith; to be willing to sacrifice; to give all that is in you to the cause. It develops breadth of vision and its fruit is joy in accomplishment. We have an organization that has been exceptionally loyal, and this has been the chief source of our success so far. Faith and loyalty to our cause inspires others to have confidence in our leadership.

The third important word to us is cooperation. Loyalty implies cooperation and the two words are inseparable companions. Cooperation means

conscious effort to quietly give unselfish and effective help to our associates. It means constructive criticism when necessary. Before you can criticise you must know the facts, and must have thought out the problem and how to solve it. Faith and loyalty make us willing to accept responsibility and do our duty as the need of the time requires. Cooperation and scientific thinking show us how to do well that which is our duty to do. In this way we get a well-balanced union of heart and head and hand, and give the best that is in us.

So far our work has been experimental, to develop methods and a satisfactory control-plan basis. We have fallen down somewhat in our conception of the meaning of the word "experimental". If experimental work is planned to the best of our ability and available knowledge, we must not think of a negative result as being a mistake. What we should do is to present data that shows a condition as it exists without anything being done to alter it. Then we show the result which we get under a changed condition due to certain action we have taken in which we eliminate as many undetermined factors as possible. We then have three things; the condition as it exists, what was done to change that condition, and the result obtained from such change. Experimental work requires scientific methods of thought, technical knowledge and ability, power to analyze results and imagination to visualize the use of the result.

We must strive harder to be accurate in computing results of our experiments and in our reasoning from these results. There is no excuse for us to be inaccurate. We have capable men and women who have good training and the ability to add, multiply, subtract and divide. We can develop the ability to think clearly and to clearly express our ideas if we consciously and conscientiously aim to do this. The only way to develop accuracy is to check so often and thoroughly on our computations and deductions that we know the results are correct. If you are loyal to our cause you will be exact in the doing of your work, whatever it may be, so that our work will not fail because it is based on inaccuracies.

Loyalty and honest work have been the chief source of our success so far. We have had as yet no serious set-back in the development of our program. The process of evolution in any worth-while idea or work is certain to bring about a struggle before full development is reached. The critical time is just ahead of us. We must demonstrate that blister rust control is practicable and economically feasible, and that it can be done on a sufficiently large scale to maintain white pine for all future time as a species of primary importance in forest management. I see no difficulty in getting pine stands protected if they have a high merchantable value now or in the near future. It is the young pine that has no present merchantable value that the blister rust is going to take unless we fight for it. It is here that I see the great necessity for clear and careful analysis of the results of control reconnaissance. Without that much young pine is apt to be needlessly sacrificed to the rust before time has changed the cash value of young pine stands from a minus to a plus figure.

I see from the spirit of this group that you are unitedly behind your leader. I think of our organization as a football team. Team-work will bring ultimate success. It does not mean that to be loyal to our leaders we must accept without debate all that leaders say. Your individual duty to your leader is to develop your initiative, accept responsibility willingly, and give constructive suggestions whenever you feel that you have ideas that are helpful and well thought out. Failure to do this means that you lose your opportunity to step into a bigger job when the opportunity offers.

(Excerpt from a talk given by Mr. Detwiler to the Spokane office personnel meeting, November 2, 1927)

HAND SPRAYER VERSUS POWER SPRAYER

Percy Bell

The following table compares spraying with hand sprayers to spraying with both the power sprayers used this summer on two blocks of the Clarkia, Idaho, chemical eradication area:

Area Worked		Gallons of Spray Used	Type of Sprayer Used	Man Spraying Time		Man Time Handling Equipment		Total Time	
Block	Acres			Hours	Minutes	Hours	Minutes	Hours	Minutes
I	3.5	98	Hand	47	42			47	42
I	3.5	109	Pacific Marine	16	24	14	12	30	36
I	3.5	105	Ross	12	02	13	54	25	56
II	1.5	224	Hand	66	36			66	36
II	1.5	152	Pacific Marine	19	--	11	36	30	36
II	1.5	216	Ross	23	44	19	32	43	16

Notes on the foregoing summary:

The year before both these blocks were sprayed by hand sprayer. Figures for hand spraying were taken from 1926 notes.

On Block I. The Pacific Marine pumper was used before the Ross pumper.

On Block II. The Ross pumper was used first. By manipulation of the hose lines one set up used with the Ross pumper was eliminated when the Pacific Marine pumper was used. When the Pacific Marine pumper was used the brush was very wet, thus saving much spray.

WORK OF STATE LEADERS

Montana: Work in Montana during October has consisted of scouting for the disease. Johnson reports that he has scouted all the main drainages in Montana west of the Continental Divide without finding any indications of the rust.

Oregon: The entire month of October was devoted to scouting for blister rust, with the exception of the time spent at Spirit Lake with Mr. Detwiler and Mr. Putnam, which was more in the nature of an investigation of that pine infection area.

Five infection points were located during the month, all of which have been reported elsewhere.

On the advise of Mr. Detwiler, more extensive scouting was done in northeastern Oregon than I had contemplated. The lateness of the season with its attendant defoliation of bushes made the scouting difficult and of less value than earlier scouting would have been. --L. N. Goodding

California: The greater part of the month was spent in the field. A trip to Humboldt County was started October 3, but the meeting of Mr. Detwiler in San Francisco, while enroute, necessitated postponing this until later in the month. After an interview with Messrs. Detwiler and Offord in Berkeley, a two-day trip was made with Mr. Detwiler into the local control areas in the Stanislaus National Forest. A general inspection was made of this area.

A trip was made to San Jose to attend a two-days convention of the California Association of Nurserymen on October 13 and 14. Remarks were made concerning the present status of the rust. Mention was made of the control area as established by the State of Idaho and the effect it will have upon the shipment of Ribes into that state. Certain phases of the chemical eradication were brought out which seemed to prove interesting to all.

At the conclusion of the convention, the trip was continued into Humboldt and Del Norte counties where a rechecking of black currant work by Spurlock was in progress. An interview was had with Mr. Erle Mills, Horticultural Commissioner of Humboldt County, who was much interested in this campaign, and gave valuable help. The completion of this recheck work during the latter part of the month resulted in finding during October eleven new plantings comprising thirty bushes; besides at twelve old locations, seventy-five replants were found. Thus there were removed at twenty-three places a total of one hundred and five bushes. The antagonism manifested by the populace at the beginning of this work was gradually dispelled as the work progressed. An educational program in the way of newspaper articles and "movies" greatly helped in this matter.

With the presence of the disease again in Oregon it seemed advisable to make some inspections near the Oregon line. Several hundred R. bracteosum,

wild stink currant, were inspected three miles south of the boundary and ten miles south, respectively in Del Norte County. A careful inspection of all cultivated black currants was made. No blister rust was found.

During the latter part of the month, a two-days trip was made to the Stanislaus National Forest to obtain wild currants and gooseberries, R. nevadense and G. roezli, for planting in British Columbia. These bushes were sent to H. G. Lachmund at Vancouver, B. C. --G. A. Root

WORK AT THE SPOKANE OFFICE

Reconnaissance: The entire month of October has been spent by the reconnaissance men in the summarization of field data. The final tabulation and summarization of all the reconnaissance notes secured during the last summer will occupy the time of these men for practically the entire winter. A start has been made on this work, however, during the month of October.

Experimental Ribes eradication: The men who are assigned to this work have spent the entire month of October in a summarization of the results of their field work and are working with Mr. Calhoun to secure actual cost figures. This is the first step necessary for the writing of their annual reports.

Ribes ecology: Rockie's time during October was divided between office work, final inspection of some of the Ribes ecology experimental areas and the securing of Ribes leaves and stems and live Ribes bushes for Offord's work at Berkeley.

RIBES NIGRUM SEEDS WILL GERMINATE

L. N. Goodding

I have never noted R. nigrum escaping from cultivation in Oregon, which does not seem the natural condition. The shoots and crowns sprout on very slight provocation, and occasionally the seeds germinate. Mr. Root's article in the October News Letter brings up old recollections. On one occasion three of us pulled out some sixty big bushes in East Portland. The place was ideal for black currants, a slight swale with a gentle slope provided moist conditions. The bushes were lusty and made an almost complete ground cover, and weeds seemed strangely absent. After pulling up the bushes, seedlings were noted on the north side of the patch in abundance, not eight or ten, but hundreds of them. Say, gentlemen, another such chance to study R. nigrum seedlings will not be passed up without so much as a raise in blood pressure.

Root will think I have been associating with Paul Bunyan or Ananias, but this story has not been multiplied or cube rooted since the telling on several occasions before reading Root's tame account. Also I can conjure up witnesses if my word be doubted.

A NEW STUDENT OF BLISTER RUST CONTROL

William J. Youden
(Boyce Thompson Institute for Plant Research, Yonkers, New York)

This news item is written by a chemist. Nevertheless, the privilege of discussing the chemical aspects of blister rust control does not fall to my lot. The importance of chemical methods in this field has already been ably demonstrated by Mr. Offord. It is likely, however, that, being a chemist, I appreciate to a greater extent than is commonly done, the complexities that are involved in experimental chemical eradication. This is an opportunity to interpret some of the difficulties in general terms.

At the outset the plan of attack is complicated by evidence showing marked differences in susceptibility among the various species of Ribes. The chemist is much in need of help at this point. A knowledge of the physiological factors that are responsible for the graded degrees of action of a chemical on the plants would contribute immensely to the development of a chemical formula that would destroy the bushes. Even supposing we knew more exactly than we do at present the specific properties desired in the spray solution the search for a formula possessing these properties and fulfilling to a great extent the requisities of cheapness and safety calls for the exercise of research methods. There is a world of difference between the preparation of a mixture with the whole gamut of chemicals to choose from and the concoction of an equivalent preparation whose components must meet the inexorable tests of availability and practicability. In the work that has been done it is clear that these requirements have been kept in mind. Finally, the application of the formula in the field presents a neat chemical engineering problem. Before visiting the areas where methods of spraying were under test I felt that this part of the process would be least satisfactory. I was quite in error. A procedure has been devised for the use of power equipment that works with remarkable smoothness despite the short time that has elapsed since this phase of the work was taken up.

The division of chemical eradication is to be congratulated on the progress of this work, which in addition to playing a significant part in blister rust control promises to make some interesting chemical contributions.

In spite of my announced determination I see I have written about chemical eradication. This was not the only interesting part of my brief stay in the West. Indeed, I cannot recall a dull day of this trip which took me into Idaho, Washington, and British Columbia. Neither was my enthusiasm due to the freshness of it all. No repetition can spoil the epic story of a forest. I am greatly indebted to the men of the blister rust organization who had patience with my ignorance and who paused

to interpret the phenomena about me.

The men in the blister rust control work are undoubtedly aware of the joys of comradeship with Mr. Detwiler. It was my happy fortune to spend a month in close association with the Chief as we visited the work. It is my conviction that I have studied under a great teacher.

1927 CONFERENCE REPORT

The annual meeting of the Trustees of the Western White Pine Blister Rust Conference was held at Portland, Oregon, November 4, 1927. The meeting was attended by a good representation of the lumbering and forestry interests of Idaho, Washington, and Oregon.

Following the presentation of reports by this office, the Office of Forest Pathology, and a paper by Mr. Detwiler summarizing the western work and the present status of the disease, a great deal of general discussion developed. This discussion was made more pointed by the announcement of the discovery of blister rust infection in northeastern Washington, Idaho, and northwestern Oregon during the past autumn. Many of the points which were raised had to do with the feasibility of Ribes eradication, when it should be applied, and what age classes of timber should first be protected. The need was stressed for a delimitation of the area in north Idaho and adjacent territory within which local control is to be applied. It was the recommendation of this meeting that the Forest Service be urged to undertake studies in both the western white and sugar pine regions that would assist in this decision and would show under what conditions these species may be successfully grown. Further recommendations of the meeting were to the effect that the Ten-year Program requires no material alteration at this time but should be followed through in the interests of protection of western white and sugar pine timber; that upon application and with proper arrangements as to the cost of the work, this office should provide interested timber owners with estimates on the cost of protection of pine upon their lands; that the various states continue and increase their efforts looking to the control of white pine blister rust; and that quarantine regulations be continued, strengthened and enforced as necessary to prevent the further artificial spread of the rust.

WORK ON CHEEKYE PLOT

H. N. Putnam

October 4 to 7, an inspection of pines planted on a plot at Cheekye was made, and the pines checked for survival. The data has not been analyzed yet, but an excellent per cent survival was found, and probably 70 trees were found infected. The north, northwest, and western radii showed heaviest infection while the east radius, which showed so much infection on the old planted pines, showed very few cankered trees this fall. One young pine 5" tall, on north radius beyond plot, showed 4 juvenile cankers. There was a R. sanguineum bush 2 feet high within 2 feet of this pine.

SUGAR PINE AND RIBES CONDITIONS ON THE NATIONAL FORESTS OF CALIFORNIA

W. V. Benedict

Blister rust control in California took on a different aspect after the completion of a scouting trip over the commercial sugar pine belt of California. Some of the outstanding impressions and observations of the trip are:

(1) A large part of the best sugar pine has been logged, both on private holdings and on the national forests. The best virgin stands of sugar pine within the forest boundaries are privately owned. One can almost classify the timber as to private or government from its quality and quantity, the private holder practically in every case getting the best.

(2) While not limited to any slope, sugar pine occurs principally on north and east slopes and the sugar pine-fir types contain more and better sugar pine than do the sugar pine-yellow pine types. However, in its higher altitudinal range sugar pine swings over on to the south and west slopes, in mixture with yellow pine and Jeffrey pine. In the lower altitudinal range of sugar pine on the sugar pine-yellow pine types, the yellow pine is by far the outstanding tree in the type; in fact, it is difficult in many cases to distinguish a sugar pine type. However, Ribes are generally so few on such types as to render protection merely a matter of a few cents per acre.

(3) In the northern part of its range, on the moist slopes sugar pine occurs principally with Douglas fir. To the southward the Douglas fir gives way to white fir, and on the southern forests little Douglas fir is seen.

(4) On the cut-over lands the sugar pine reproduction is not very conspicuous. This is largely due to the characteristic slow juvenile growth of the sugar pine, but can partly be accounted for by the poor reproductive qualities of the species.

NOTE: The present year seems to be a good seed year for sugar pine over its entire range.

(5) The best sugar pine noted on the trip was on the Stanislaus Forest and Yosemite Park in the vicinity of Carl Inn. Here sugar pine, in its association with white fir and incense cedar, becomes the chief tree in the stand.

(6) The site condition occupied by the giant Sequoia seems to be especially suited to sugar pine for it is in the big tree groves that sugar pine attains its largest size and greatest density. Here

sugar pine is a magnificent tree but its large and massive proportions are rendered negligible by the overtowering Sequoias.

(7) Numerous Ribes species inhabit the sugar pine region but the only two of outstanding importance are G. roezli and R. nevadense. In local areas R. cereum works down from the higher elevations and becomes quite numerous in the upper sugar pine type and in the north G. inermis is dense along certain streams and G. cruenta shows up in old burns and cut-over areas. But the two species of importance in eradication are G. roezli and R. nevadense.

WATER TABLE AND RIBES LACUSTRE DISTRIBUTION

W. A. Rockie

The water table is the upper limit of that portion of the soil wholly saturated with water. In regions of gentle slopes and slight relief, the water table outcrops only in the more pronounced depressions or drainageways, or where forced to the surface by impervious, non-conformable underlying bed rock. In regions of steep slopes and high relief the water table may outcrop (1) in all drainageways (2) anywhere on any steep slope, and (3) adjoining bed rock outcrops on any site. In order that the water table may outcrop, a higher level of that table is necessary to give sufficient pressure to force the water out.

Ribes lacustre is a potential Ribes factor wherever the water table is at or sufficiently near to the surface of the land during the early part of the growing season for the Ribes plant to get an abundance of water. It appears that this abundant water supply is not vitally essential to the plant later in the season. Apparently it must have fair soil drainage. Topographically, this permits R. lacustre on any site at high altitudes, because the delayed melting of the snow supplies this necessary early-season moisture. At lower elevations, the species would be limited to stream bottoms, draws, depressions, and steep slopes wherever moisture is within reach of the roots. Because of gravitational seepage, most steep slopes are sufficiently subirrigated to permit the growth of R. lacustre. Southwesterly sites of exposed character may prove to be an exception.

Generally speaking, gently sloping or level uplands are not potential R. lacustre sites, although R. lacustre does occur locally.

NOTE: This theory is sufficiently interesting that I should like to see figures to either prove or disprove it. There exists the possibility that the general distribution of any Ribes species is largely governed by temperature relations, as modified by altitude, latitude, distance from the ocean, and such factors, while local occurrence within the botanical range may depend upon available moisture. This is another theory, to be proved or disproved.

S.N.W.

A RECHECK OF BLACK CURRANT ERADICATION IN CALIFORNIA

George A. Root

A study of the possibility of resprouting or replanting in pre-eradicated areas in the state was undertaken this season. This work started in July and continued at certain intervals until November 1. The following is a general summary of the results as found:

In 11 counties over which the study was conducted, there were originally 465 plantings comprising 3105 bushes. Of this number 242 plantings with 2480 bushes were checked. Of these, bushes were still at 36 plantings, 25 of which showed sprouts, seedlings or missed bushes, and 11 showed replantings comprising 65 bushes. Replantings took place only in one county where there had been antagonism from the start over the black currant campaign. The total number of sprouts was 68, 14 of which seemed to have come from roots left in the ground, 49 from crowns left in the ground and 4 from parts of bushes left on the ground. In addition, there were 10 seedlings and 11 missed bushes, making a total of 89 bushes in the 25 locations. Briefly stated, the roots and crowns left in the ground were in several instances due to careless or inefficient work, but in the majority of cases, the original bushes were so situated among berry briers, willows and other shrubbery that it was well nigh impossible to make a clean eradication the first time. At five places, 11 missed bushes occurred. The primary cause for this seemed to be the lack of thorough inspections of all likely places on the premises.

A search for entirely new plantings, in conjunction with the recheck work revealed 27, comprising 115 bushes. Of these 27 plantings, 8 had been set out since the first eradication. About 15 should have been spotted the first time, while the remaining 6 were so situated that the ordinary method of procedure in scouting would not have revealed them.

EXPERIMENTAL CHEMICAL ERADICATION

H. R. Offord

Work has been in full swing for the entire month at Berkeley. Mr. d'Urbal reported for duty on October 10 and the work as a result has been materially speeded.

Blank determinations for chlorine on all new lots of reagents have been carefully run. Samples of Ribes material gathered from Bovill plots have been prepared for analysis and a number of preliminary analyses made according to the technique worked out last year.

R. viscosissimum material has been received and handled as follows: One third of lot planted out of doors on the Oxford tract of land, one

third placed in cold storage at Hilgard Hall, the remainder has been potted on sand cultures in the Forestry greenhouse. A special white silica sand has been procured for this work and nutrient solutions will be used to grow the Ribes. R. petiolare, R. lacustre and G. inermis are to be handled in a similar manner.

The writer has been working out a method for the quantitative determination of chlorate ion when it is mixed with the cell sap and expressed juice of Nitella. Very encouraging results have been obtained by oxidation of a known amount of ferrous - ammonium sulphate previously standardized against potassium permanganate which in turn had been standardized against Sorensons sodium oxalate. The Nitella sap allowed theoretical recovery of known amounts of sodium chlorate which had been added. The expressed juice of Nitella involves a slight reduction of the $KMnO_4$ used in the titration, but very consistent blank factors have been obtained by adding different amounts of the expressed juice to the known solutions and observing corresponding changes in the quantity of $KMnO_4$ necessary to bring the action to equilibrium. The writer feels that the above is a very encouraging feature of the months work. It is hoped that by suitable solvents and treatment of the finely powdered Ribes tissue that this method can be adapted to the direct determination of chlorate ion in Ribes tissue. This method would be quicker and more accurate for our purpose than that proposed by Hibbard and used by us in our work last year.

CORRECTION

L. N. Goodding

I have heard tell of safety factors, arithmetical factors, matrimonial factors, and limiting factors, but what the deuce is a hunting factor? I have spent some time hunting squirrel, duck, quail, and even deer, but can't remember spending any of my summer months hunting factor. For the life of me I can't just figure what I was doing when I was hunting that factor mentioned in the October 15 News Letter. All of which leads me to remark: Please, Mister Editor, if you can't read my articles, make up something reasonable.

Correction: "Hunting factor" in two places in the News Letter of October 15 should read "Limiting factor".

QUARANTINE INSPECTION

The following violations have been intercepted thus far:

Date	From	To	Plants
Oct. 14	Montana	Idaho	6 currants
" 27	Ohio	Washington	1 currant
Nov. 4	South Dakota	Idaho	10 currants
" 4	Washington	California	1 white pine
" 5	Idaho	Washington	2 white pine
" 17	Washington	Illinois	1 gooseberry
" 24	Wisconsin	Washington	2 white pine

RECHECKING FOR BLACK CURRANTS IN IDAHO

R. L. Wolcott

As you know, Inspector Stuart and myself were assigned the north counties in Idaho, on follow-up work, scouting ground covered I think twice before.

As we were scouting for black currants only, we went at the work systematically, cutting districts into plats on the map we were using so as to cover the ground thoroughly and it seems the results we obtained justified our effort, as we eradicated some 300 plants during the time we were on the job.

In many cases 1 plant was found at a place, although I have not seen a condensed report of our work I think 36 plants were the most found at any one place.

I found in many cases where plants had been eradicated by former crews that care had not been taken in digging deep enough to get the crown root and plantings in some cases had revived and grown to be large healthy bushes. In other instances there were branches broken off and left lying on the ground while in some way dirt was thrown over them, so that they grew, in most instances where the grass was growing abundantly, or in damp moist soil.

I am not sure that this may happen in some of the places where we first dug plants out, as at that time I did not know that a branch might get covered up in this way. When we discovered what would happen we were more careful.

An experience I had at Coeur d'Alene might be of interest. A resident of that town who had two lovely plants growing in his garden refused to allow me to eradicate them. I called on the prosecuting attorney and he advised the proper procedure in this case. I had to give the owner written notice that it was unlawful to have old English black currant growing in Idaho, and state a time when the plants must be destroyed. At the time stated I was to secure the sheriff and proceed to seize the plants, but evidently the owner had a change of heart, for when I returned at the stated time, I not only eradicated the plants but secured a release on them as well. This is the only time during the summer where I had to bring pressure to bear in order to obtain bushes.

As to places where we found bushes in many cases most unexpected. I remember of one instance in Sandpoint, as I walked through a lot I examined the bushes and out of five bushes found four of them to be Enlgish black currant. I then called at the door and a lady who owned the place answered the door bell. I explained my business and then asked her if she had any old English black currant bushes on the place. She answered, "No, I wouldn't have one on the place, I don't like them and

anyway, it is against the law to raise them." I said, "Thank you, Madam, since you know it is unlawful to raise them and you don't like them, you will kindly sign this release and I will dig the four plants up which you have out in the back yard." She was some flustrated for a few minutes and when she could get her breathing in order she asked me please not to arrest her. Of course, I said I wouldn't.

In one place I received a report from a man that his father had had a bush of old English blacks on his homestead 22 years ago. The place was about four miles from the Canadian Border and the road had long ago been grown over, but Ed and I worked our way through for a couple of miles and at last came to a place that looked like it had been inhabited and after searching the whole place over, we at last discovered it, and it sure was a moose of a bush. We were lucky that day because the Chief Field Inspector Harry Sabin came in to see us and we had some results of our days travel to show him.

Our heaviest eradication was at the town of Kellogg where we found 13 plantings and secured 48 bushes in one day. This town had evidently only been worked through the main street as elsewhere they had not heard of eradication work before.

Taken all in all, I think our efforts were well worth while, but as I see it, the same work will have to be performed at least every two years in order to keep control of the situation as some are sure to be replanted.

CHEMICAL ANALYSIS OF RIBES TO BE MADE

During October the office received from Mr. Offord a request for a large quantity of Ribes leaves, stems, and roots for chemical analysis. As a result, 41 pounds of R. petiolare leaves, 27 pounds of G. inermis, 20 pounds of R. lacustre and 13 pounds of R. viscosissimum leaves were hand picked, sacked and brought to the Spokane office for drying. Leaves were scattered on floors, tables, etc. throughout the office. If you do not think that R. petiolare has an odor ask those in the office at Spokane, who were here during the drying season.

At the same time stems were collected as follows: 43 pounds of R. petiolare, 45 pounds of G. inermis, 15 pounds of R. lacustre, and 13 pounds of R. viscosissimum.

As a result, at present we have the basement full of Ribes awaiting chemical analysis.

BLISTER RUST OFFICE MOVES TO NEW LOCATION

George A. Root

The Sacramento Office of Blister Rust Control moved into new quarters with the State Department of Agriculture when the latter recently moved from a business block to one of the new capitol extension buildings. The department occupies the entire second floor of a large five-story building.

NOTES

The western office recently purchased a compound microscope and microphotographical equipment for the use of Mr. Patty in his study of the leaf structure of Ribes. At present he is working out the technique for the removal of the epidermis for stomatal counts.

* * *

Mr, Detwiler started on his return to Washington, D. C. on November 7. On his trip West this fall he examined carefully all of the projects which are being carried out in the West.

* * *

Mr. Posey arrived in Spokane on November 3. He is spending his time aiding the different project leaders to analyze their work. He expects to be in the West until about the middle of December.

* * *

Mr. Joy has reported at the Spokane office. He is aiding Mr. Putnam in working up his infection studies which were made on the coast of Washington during the past summer. During October Mr. Joy spent his time scouting and doing nursery inspection in Oregon.

* * *

Mr. Simcoe is summarizing and analyzing the checking data taken during the 1927 season. He has summarized this data for each block, obtaining the efficiency percentage on the basis of number of bushes and feet of live stem. He is also summarizing the data on number, species and size of bushes per acre on the various exposures.

* * *

Mr, Myers took enough time off during the month to get married. We wish him the best of success.

* * *

"Brick" MacLeod is spending part of his time on quarantine work at Spokane and part of it working in the educational project.

SUMMER LETTER

12

SUMMER CENTER

Vol. 2 December 15, 1927. No. 12.

BLISTER RUST NEWS LETTER

for

STATE AND PROJECT LEADERS

* * *

Confidential

* * *

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U. S. Department of Agriculture
Western Office of Blister Rust Control
Spokane, Washington

THE SEASON'S GREETINGS

At this Yuletide Season we wish to extend to all Blister Rusters our Best Wishes for a very Merry Christmas and a Bright and Prosperous New Year. May 1928 bring you Health, Happiness and Success in the solving of your problems.

BLISTER RUST TO THE FORE

Blister rust information is being disseminated at every opportunity. During November, Dr. E. E. Hubert gave two lantern slide talks on blister rust; one at Potlatch, Idaho, and one at Coeur d'Alene, Idaho.

A blister rust film was sent by Mr. Root to the Fresno State College at Fresno at the request of the Head of the Department of Agriculture and Biology. It was displayed to classes comprising 175 students.

Mr. H. R. Offord attended the fall convention of the County Horticultural Commissioners at Stockton, California, where he outlined briefly his work on chemical eradication, during a discussion of weeds and weed herbicides which formed part of the convention program. The subject of portable pumps aroused considerable interest and elicited numerous questions.

A PRELIMINARY STUDY OF INFECTION CONDITIONS ON THE COAST

H. N. Putnam

During the first week in December Mr. Posey and the writer made a trip to the Coast to observe infection conditions there in order to formulate plans for the study of the disease from the control viewpoint. Owing to the large amount of snow and poor transportation facilities at this time of year, it was only possible to go to Cheekye, B. C., Daisy Lake, B. C., and Bremerton, Washington.

At Cheekye and Daisy Lake interest was centered chiefly on infection of large pines. Damage is beginning to be apparent on pines 10 to 20 inches D.B.H., evidenced by dead branches. In many instances cankers were found to have reached the trunk.

An area near Bremerton, Washington supports a fully stocked stand of white pine approximately 15 years old belonging to the Mountaineers Club of Seattle. Within a half mile is a very heavy infection on white pines and associated Ribes species. The Mountaineers have selected the western white pine as their emblem and are very anxious to protect this pine stand. The immediate problem here is to make a pre-eradication study to determine the feasibility of local control. If a small control project is undertaken here it will be the first attempt in the West, except for the Cheekye experiment, to eradicate Ribes from an infected area. It is believed that it will present an opportunity to study the effectiveness of control.

GATHERING DATA ON WHITE PINE

Messrs. Bedwell and Riley were in Potlatch, Idaho, December 5 to 8 inclusive, compiling data on volume and accessibility of white pine on lands within the boundary of the Potlatch Timber Protective Association.

WHEN DO WE MOVE TO MEXICO?

L. N. Goodding.

I am having Miss Bowman prepare a card index of available literature on white pine blister rust, white pine distribution, and other related topics.

The following in the June, 1927 number of The Timberman is interesting: "Mexico as Pine Producer." I glanced through this article chiefly to see if I recognized any of my old Arizona friends. The article applies to a timber tract in Durango. I believe the timber holdings of the company, the Compania Maderera De Durango, also extend into Chihuahua. This is from recollections of a trip I once took through this region. The holdings are extensive, and the yield will run about 10,000 feet to the acre.

Only three species are listed. The first, and I assume the most important, is Pinus strobiformis, a tree occurring in southern Arizona, but not considered of any importance by others than dreamers. The second one is Pinus leiophylla, which also occurs in southern Arizona, a tree of grace and beauty, in fact a feast to the esthetic eye, but too small in Arizona to be of commercial value. This is not a white pine. The third is Pinus Arizonica, a five needled pine which is not a white pine. Even in Arizona where this tree grows, it is of outstanding importance as a timber tree. It is a handsome, smooth-barked, yellow pine, closely resembling P. ponderosa.

Since P. strobiformis is an important timber tree over vast areas in Mexico, some of our fellows might do well to begin the study of Spanish in anticipation of a call for help from Calles.

QUARANTINE INSPECTION

C. R. Stillinger.

Quarantine work was continued at all inspection points during the entire month. The following violations were intercepted:

Date	From	To	Via	Contents
11/4/27	Washington	California	P.P.	1 white pine
"	N. Dakota	Idaho	"	10 currants
11/5/27	Idaho	Washington	Express	2 white pine
11/17/27	Washington	Illinois	"	1 gooseberry
11/18/27	"	Oregon	P.P.	4 currants
11/24/27	Wisconsin	Washington	Express	2 white pine

RE-INSPECTION OF ECOLOGY PLOTS

W. A. Rockie.

On December 5th, Benedict and the writer went to Lakeview-in-Greenland. By securing a few additional mapping details, we were able to make a complete map of a small cutting area. The brush had been piled and burned, making a rather idealized logging unit - from the forester's viewpoint. From the blister rust viewpoint, it presents material for considerable thought. The completed map is to be photographed, and used for a lantern slide.

The other ecology plots there were also hurriedly examined, but no new Ribes were found to have germinated since the previous examination in the early part of October.

Since the cold wave came before we reached Spokane that evening, it proved to be the last day that we could have accomplished our purpose. We found that the baby Ribes (born in 1927) had not yet learned to put on their winter "undies" nor to button their coats. All 1927 seedling Ribes were still in full leaf, but the two-year and older Ribes were entirely dormant and defoliated. The parent Ribes apparently leave it for the first cold wave to teach the young children when to put on their winter garb.

While examining the Ribes bushes, a small wild Geranium was found in blossom. It appeared that the plant had grown from seed this year, but had just come into blossom about December first. It undoubtedly died that night, and is now buried about two feet deep.

Incidentally, it was cold riding on both land and water.

EXPERIMENTAL CHEMICAL ERADICATION

H. R. Offord

Considerable progress has been made in the development of technique for the determination of small amounts of chloride and chlorate in Ribes tissue. A fresh lot of Nitella material has been gathered and further experimental work is being made to determine if possible the relative importance of the wave length and the intensity of light on the action of the chlorate. Evidence points to the importance of the suberized and cutinized layers of Ribes tissue as being the controlling factors in the action of the chlorate and the resulting observed difference in susceptibility of species.

Ribes on sand cultures are progressing very favorably. Some trouble was experienced with mildew on R. viscosissimum and G. inermis. R. petiolare and R. lacustre did not seem to mildew to nearly the same extent. Ants, spiders, aphis and other insects have also received attention.

A FIELD KEY TO SOME OF THE SPECIES OF RIBES OF THE SUBGENUS EUCOREOSMA

G. N. Jones.

Some difficulty has been experienced by members of the blister rust force in distinguishing between Ribes nigrum and some of its near relatives in the subgenus Eucoreosma. The writer has therefore attempted to point out some foliage characters by which some of the species of this group may be identified. This paper is, of necessity partly a compilation but some close analytical field work has been done also.

The subgenus Eucoreosma consists of currants bearing sessile, yellow glands and foliage that possesses a distinct characteristic odor, and in ours, black fruit with a peculiar taste. The species that black currant scouts have encountered in eastern Washington are:

R. nigrum and some of its varieties
R. americanum.
R. bracteosum.
R. petiolare.

No attempt has been made to distinguish between the varieties of R. nigrum.

When flowers or fruit of these closely related species are available, determination is relatively easy but during the summer, especially late summer, flowers are of course not present, and fruit is often scarce or absent entirely, therefore determinations frequently have to be made on leaf and stem characters alone. As most books on identification of currants either do not contain keys based on vegetative characters or do not contain both wild and cultivated species this situation has frequently resulted in confusion.

The four species listed above may be divided into two natural groups:

1. Cultivated currants, R. nigrum and R. americanum.
2. Wild currants, R. bracteosum and R. petiolare.

In most cases this classification is sufficient to decide whether bushes should or should not be eradicated. Habitat, too, is often of some assistance. There have been some instances, however, when the owners of currants, anxious to retain them, have insisted that they were wild species (i.e. R. petiolare or R. bracteosum), and inversely, some other people having wild species on their property are not able to distinguish between that species and R. nigrum and black currant scouts have been sometimes equally at a loss to be able to point out some distinguishing characters. The reasons for eradicating R. nigrum and for not eradicating some alleged different species, the difference between which they are not able to distinguish, are too obscure for many people to comprehend. R. petiolare has been especially confusing in Kittitas and Chelan counties because of its close general resemblance to R. nigrum. It is locally

abundant along nearly all the streams in the Arid Transition Zone, timbered in these counties. R. bracteosum, owing to its restricted range on the eastern slope of the Cascade Mountains plus the fact that that restricted range is generally sparsely populated, has, so far, caused little confusion. R. americanum, because of its relative scarcity, will seldom be confused with R. nigrum.

The following key may be of some value in the determination of the species of this group with which scouts may meet when flowers or fruit are not available. Additional flower and fruit characters are included, however, for purposes of convenience. The use of a hand lens is essential:

Leaves 5 - 7 lobed, very large, 6 - 8 inches broad and long; lobes long pointed relatively narrow; resin dots on underside of leaf; fruit clusters erect or ascending. A native species growing in mountain swamps and along streams in eastern Washington, only on the upper slopes, usually above 2500 ft. elevation
- R. bracteosum.

Leaves 3 - 5 lobed, usually smaller, less than 6 - 8 in. broad and long; lobes ovate - deltoid, relatively broader; fruit clusters pendulous or erect. Leaves always resin-dotted on both surfaces; usually less than 3 in. broad; stems usually ridged; fruit smooth. A cultivated currant seldom found in eastern Washington
- R. americanum.

Leaves resin-dotted on under surface only, or very rarely on both surfaces; stems usually round; fruit glandular or resinous-dotted. Resin dots on underside of leaves few, on a normal, average leaf 50-70 per square inch; petioles glabrous or subglabrous with few or no fringes at base; older leaves glossy-green above; veins on underside of leaves glabrous or subglabrous; young stems glabrous or subglabrous; bark on 2-year-old twigs white or whitish; fruit clusters erect or ascending; a native wild species, seldom cultivated, growing along streams and in swamps on the upper slopes of the Arid Transition Timbered Zone of eastern Washington
- R. petiolare.

Resin-dots on underside of leaves numerous, 150 or more per square inch on an average leaf; petioles minutely puberulent and with several plumose fringes at base; older leaves dull green above; veins on underside of leaves puberulent; young stems downy-puberulent; bark on 2-year-old twigs grayish or brown; fruit clusters pendulous. A cultivated European species not known to grow wild in eastern Washington
- R. nigrum.

SUMMARY OF RIBES ERADICATION IN IDAHO
1922 - 1927

Year	Type	Acres	No. Bushes Pulled	No. Bushes per Acre	Cost per Acre	Efficiency of Work: No. Bushes	Efficiency of Work: Ft. L.S.	Avg. Size Bush Pulled	Avg. Size Bush Missed	No. Bushes Missed per Acre	Ft. L.S. Missed per Acre
1922	Mature	300	19958	66½	$1.45	--	--	--	--	--	--
	Pole(50 yrs)	10	3260	326	2.35	--	--	--	--	--	--
	Dense Rep.	21	2367	113	1.59	--	--	--	--	--	--
	Old Burn-Rep	50	280	5½	0.096	--	--	--	--	--	--
	Open Rep.	33	2606	79	2.99	--	--	--	--	--	--
	Total	414	28471	69	$1.44	71.33	81.50	12.66	7.06	209.82	1480.64
1923	Crew	154.8	43238	279.3	16.16	--	--	--	--	--	--
	Scout	1543.2	10317	6.7	.48	--	--	--	--	--	--
	Total	1698.0	53555	31½	$1.91	--	--	--	--	--	--
1924	Stream	255.9	48626	190.0	6.60	--	--	--	--	--	--
	Ribes Free	2953.4	37753	12.9	.79	--	--	--	--	--	--
	Brush or Rep Uniform	1732.4	159125	91.9	2.36	--	--	--	--	--	--
	Brush or Rep Patchy	254.0	8850	34.8	1.57	--	--	--	--	--	--
	Dense Rep.	309.3	5925	19.1	1.54	--	--	--	--	--	--
	Fresh Burn	12.0	7037	588.4	12.55	--	--	--	--	--	--
	Total	5517.0	267316	48.4	$1.65	76.29	85.52	12.7	6.16	12.9	79.46
1925	Stream	149.4	45985	307.8	8.14	--	--	--	--	--	--
	Ribes Free	1093.1	2504	2.3	.50	--	--	--	--	--	--
	Open Mature	281.4	25860	91.9	2.59	--	--	--	--	--	--
	Brush, Uniform	1347.65	171286	127.1	6.44	--	--	--	--	--	--
	Brush, Patchy	733.75	66037	90.0	4.55	--	--	--	--	--	--
	Thicket	574.9	28976	50.4	2.23	--	--	--	--	--	--
	Fresh Burn	44.7	23284	520.9	8.72	--	--	--	--	--	--
	Rock Type	34.8	1836	52.8	2.71	--	--	--	--	--	--
	Total	4259.7	365768	85.9	$3.83	83.96	94.12	12.7	4.15	16.38	68.00
1926	Dense Mature	465	1041	2.2	.32	--	--	--	--	--	--
	Dense Pole	1612	11627	7.2	.53	--	--	--	--	--	--
	Dense Rep.	940.5	15651	16.6	1.13	69.00	--	--	3.03	7.46	22.6
	Open Mature	573	5989	10.5	.69	--	--	--	--	--	--
	Open Pole	4300.87	120380	28.0	.80	88.68	90.94	3.67	2.87	3.57	10.24
	Open Rep.	472.0	6579	14.0	.83	94.50	96.50	4.77	2.95	0.815	2.42
	Stream	501.63	217995	434.2	9.87	87.91	96.74	21.77	5.16	59.71	308.10
	Total	8865	379262	42.8	$1.26	91.16	94.98	5.06	3.59	22.72	81.56
1927	Dense Mature	2269.1	46315	20.4	.73	76.46	82.01	20.65	14.71	5.72	84.09
	Open Mature	6357.5	319895	50.3	1.24	82.41	89.29	14.17	7.96	18.83	149.94
	Dense Pole	1320.3	54028	40.9	.81	90.74	95.87	12.85	5.42	5.81	31.48
	Open Pole	1177.0	32101	27.3	.77	94.92	92.99	4.79	6.62	11.35	75.17
	Dense Rep.	1209.4	37160	34.3	1.53	80.38	89.57	15.40	7.35	14.24	104.60
	Open Rep.	618.3	136868	205.0	5.36	89.25	96.98	10.99	2.82	30.26	85.24
	Cutover	2482.5	840201	338.4	3.80	81.72	92.85	7.72	3.12	56.02	174.81
	Stream	987.9	553385	560.2	12.66	87.17	96.83	19.69	4.38	97.69	428.33
	Swamp	15.5	48580	3134.2	51.05	--	--	--	--	--	--
	Total	16437.5	2068533	126.0	$2.40	86.47	95.59	15.03	4.60	38.91	178.97

WORK AT THE SPOKANE OFFICE

Work at the Spokane office has fallen under several general headings during the month of November. Meetings and conferences which are being held at this season of the year on the subject of blister rust control have in many cases necessitated the rapid summarization of large numbers of field data. Upon completion of this work the men who are headquartered in Spokane have devoted the balance of their time to the preparation of their annual reports.

MORE ABOUT THE GERMINATION OF R.NIGRUM SEEDS

George A. Root

The "rise" from one of the good brethren on this question was forthcoming as expected. The gentleman from Oregon has gone me one better on two counts now. I do not doubt his veracity. I do not detract one whit from the revelations which his hound-like nose and eagle eye unearth for I realize that most any darn thing will happen in that land of Oregon mist.

To the Editor: The above squib is not to start a general repartee. There is not room enough now for substantial news which could be entered in the News Letter. However, a little humor injected into some of the articles is appreciated. I enjoy reading Goodding's news items. --G.A.R.

WORK OF STATE LEADERS

Montana: Johnson reports that during November he made an additional trip to the Savenac Nursery at Haugan, Montana, in order to secure more data as a basis for Ribes eradication plans. The balance of the month was spent in tabulation of reconnaissance data.

Oregon: Goodding reports that scouting for the rust was continued up to November 10, after which nursery inspection was started. During this month Goodding and Strong also inspected the Forest Nursery at Wind River and Ryderwood, Washington, to determine the feasibility of Ribes eradication. Special reports will later be made on these inspections.

California: Root reports that during November his office has been moved from the Mull Building to the Capitol Extension Building. This is the new state building which has recently been erected for use by state officials. When the California State Department of Agriculture moved to the Capitol Extension Building they provided space for Root's office. The balance of the month has been devoted by Root to the preparation of his report.

PERSONAL NOTES

Mr. Posey, after two months in the West, departed on December 12th for Washington, D. C. While here he studied the different projects that are being carried out and left behind him many constructive suggestions.

* * *

Bill Painter will visit his brother in Portland during the Christmas season.

* * *

Frank Patty goes to La Grande, Oregon, to spend Christmas with his parents. The remainder of his annual leave will rush by in Corvallis, Oregon.

* * *

D. R. Payne, after a successful season of quarantine inspection, is displaying his well known versatility in helping the Post Office Department through the seasonal rush.

* * *

Mr. and Mrs. Phil Simcoe leave on December 20th for Seattle where they will spend Christmas with their parents.

* * *

Mr. and Mrs. Benedict have left for Hoquiam, Washington, where they will spend the Yuletide season with Benny's folks. It is rumored that Benny is looking forward to driving a real car.

* * *

A. H. Glasgow will spend his annual leave with his parents in Spokane. He is being relieved from quarantine inspection by G. A. Felch who has been making a thorough investigation into the shipping of Christmas trees in western Washington and Oregon.

* * *

Ed Joy leaves during Christmas week for Portland, where he will visit his folks and -- Egad! I've forgotten the lady's name.

* * *

When last heard of, "Doc" and Mrs. Kenyon had left via Ford Coupe for Portland, where they will spend the holiday season with relatives.

* * *

Summer Letter

SUMMER LETTER

SUMMER BLISTER RUST NEWS LETTER

By The

WESTERN OFFICE OF BLISTER RUST CONTROL

1927

Spokane, Washington.

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1

SUMMER

BLISTER RUST NEWS LETTER

No. 1

U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington.

INTRODUCTION

The Summer News Letter is issued to all temporary employees of the Office of Blister Rust Control, one number each month, during the period of their employment.

The object of this letter is to provide each man with a general idea of blister rust work as it exists today and the progress being made in the solution of the problem as a whole which has been made during the last few years, as well as to give more in detail the program of the present summer's work.

News items will be included from the different projects, the different camps and from individuals. Reports of spicy items in the way of happenings, interesting observations, short appropriate stories, camp songs or poems and rhymes which are developed by individuals will be much appreciated. Give them to your camp boss, project leader, or send them to "The Blister Rust Summer News Letter," 618 Realty Bldg., Spokane, Washington.

Much of the success of this news letter depends upon the cooperation of all individuals. You would like to know about the other fellow. He would like to know about you, what you are doing and impressions you have of the work. Do your part first before expecting the other fellow to do his. Do it now.

Any suggestions as to improvements or recommendations as to additional information or topics you would like discussed in this news letter will be helpful. It is for your benefit, enlightenment and entertainment. We shall be glad to hear from any individual or any group.

BLISTER RUST CAMP PROVERBS - Oregon

L. N. Goodding

The use of a cold uncomfortable bed proves you are tough and brainless. Time spent in preparing for a good sleep spells efficiency for the next day.

Slippery logs across streams used day after day for crossings substitute child's play and childish vanity for safety.

Poor trails to camps and eradication sites where much work is to be done are long on brawn and short on brain.

So-called tin vessels, gasolene cans for example, for apple-sauce, apricots, peaches, and tomatoes are about as sensible as a mild seasoning of arsenic in the biscuits.

When men pack provisions for miles over trails which horses negotiate with ease, somebody is an ass.

OUTLINE OF BLISTER RUST WORK IN THE WEST FOR 1927

Blister Rust work in the West is being carried out according to a definite outline of activities, based on a ten-year program. These different projects are being developed according to a definite schedule as to time of their completion and money to be expended each year by Federal, state, and private agencies.

This program was outlined by Federal, state, and private timbermen who are interested in the perpetuation of white and sugar pine in the West. It represents what is considered the most desirable and effective measures which must be taken in order to retard the spread of the disease, as well as work out practical means of protecting the white and sugar pine from the disease. Each unit is but one stone in the wall which is being built against blister rust. In order that you may gain some idea of the problem in which each one is playing a small part, a brief outline of the work which is being carried out this year is given below.

I. Eradication of cultivated black currant:

The program calls for the complete eradication of this plant in Montana, Idaho, Washington, Oregon and California. Montana and Oregon have been completed. Eight men are now working in Idaho, six in Washington, and seven in California. Idaho and Washington will be completed this summer and about two-thirds of California.

II. Quarantine work:

The movement of currants, gooseberries and white pine interstate are restricted by Federal regulations. In the fall and spring 8 to 10 men inspect nursery stock in transit at Seattle, Tacoma, Portland, Pendleton, Pocatello and Spokane in order to detect violations of these quarantines.

III. Chemical eradication:

In many places Ribes are so thick that hand pulling is very difficult and expensive. Nine men compose the unit which is endeavoring to find chemicals which may be used to kill these plants where they occur in such concentrations. The center of their activities is Bovill, Idaho. They will also do a little work in California.

IV. Ecology work:

The whole ultimate aim in blister rust control is the permanent elimination of the wild currant and gooseberry from any white or sugar pine sites. This may be partly accomplished by the eradication of the plants, and partly by forest management. In order to rightly solve this problem it is necessary to know the complete life history of these plants and their means and methods of living. When these facts are known, then the attack will be centered on the weaker links in its life-history. Finding out these facts is the work of the ecology unit.

Fourteen men are employed in this work. The larger part of the work is being done at different points in northern Idaho. little is being done in Oregon and California.

V. Control reconnaissance:

This is a general survey of the white and sugar pine regions in order to determine the kinds and abundance of Ribes distributed over these areas. From these data a plan for the ultimate protection of all of our white and sugar pine can be developed and approximate costs for protecting a particular area may be estimated upon the basis of results obtained from our experimental eradication work. Three men are employed on this work in Montana, fifteen in Idaho, two in Washington, and six in California.

VI. Experimental Ribes eradication:

Eventually it is hoped that by means of forest management the Ribes growth in the white pine forests can be controlled. If this is not possible or until such time as it is possible, it will be necessary to protect our white and sugar pine by mechanical destruction of these plants. The development of practical means of doing this, is the main and largest feature of the blister rust program. Experiments along this line are being carried out in Idaho, Oregon, and California.

The experimental work in Idaho is being done on the Coeur d'Alene National Forest, in the Honeysuckle Ranger District, about 30 miles east of Coeur d'Alene. One hundred twenty-seven men are employed at this point. In Oregon only a very small unit of eleven men is employed on this work at present, in the region of Mt. Hood. In California twenty-three men form the experimental eradication unit located about 30 miles out from Sonora in the Stanislaus National Forest.

VII. Cooperative demonstration in Idaho:

The timber protective associations in northern Idaho are making a survey of all of their lands preparatory to developing a definite blister rust control program. Each of these associations has a permanent blister rust leader, who is trained by the Blister Rust Office. During the summer, each has several assistants with him in the field. In all, nineteen men are employed in this work. Half of the expense of these men is paid by the association and half by the Blister Rust Office. Their work thus far has been largely a timber and Ribes survey.

VIII. Scouting for the disease:

In order to maneuver with the enemy successfully it is necessary to keep constant contact with him. Each spring raiding parties make sorties into his permanent strongholds, that is, the pine infected areas, in order to learn just how well he is entrenched and whither he is extending his permanent trenches.

Each fall parties maneuver in front of the enemy in order to determine whether any advanced posts have been established on Ribes.

The findings as a result of this scouting determine somewhat whether it will be necessary to change our plan of attack.

During the present summer a party of eight men will cover the coast region of Washington working entirely in enemy territory in order to determine how well the enemy is entrenched on pine in that region.

IX. Educational work:
The object of this work is to disseminate information to all who may or should be interested in blister rust and its control. Each one of the permanent personnel of the office aids in this work as opportunity offers. One man spends part of his time in aiding in the general development of this work.

X. Supervision and maintenance of Spokane office:
A personnel of seven in the Spokane office forms the hub of the wheel around which all the work centers.

In all, there are 283 blister rust workers. Five are clerical helpers, twenty-five are permanent technical personnel and 253 are temporary employees.

* * *

Heard on the Crew:
1st man: "Heinie, why do you wear a hat?"
Heinie: "To protect my head. Keep the woodpeckers off."
1st man: "It would take more than woodpeckers to get anything out of your head." (Camp 1 - Idaho)

RIBES

I was a green one at Ribes--
Much more green than I'll tell.
But Clarence, a forester, he showed me,
And Clarence is clever as 'ell.
Showed me the viscy, lacustre and inermis,
With no-see-'ems and nettles thrown in.
And mosquitoes; they were enormous.
And I learned about Ribes from him.
I've taken my Ribes where I've found 'em.
I've hunted and searched all day.
I've 'ad my share of pulling
And always earned my pay. (?)
There are Ribes lacustre, aplenty,
And viscy's, only a few.
Inermis in all the creek bottoms
So there's work for all to do.

Barnyard Cipling and
Aaron Glasglow

* * *

What the foremen believe the crews do: "See 'em and leave 'em."
What the crewmen think the foremen do: "Find Ribes behind everyone else."
(Camp 1 - Idaho)

BRIEF NOTES ON JUNE WORK - IDAHO ERADICATION

As a result of the June work nearly 300,000 Ribes bushes were destroyed from an area of 1500 acres. A large amount of the area covered was Stream or Swamp type which accounts for the large number of bushes. Since a part of the June period in each camp was taken up with training of new men the month of July will undoubtedly see a marked improvement in all crews, from stream to scout.

It has become evident in the checking over of Swamp areas that many bushes are trampled even by the most careful crew. Further observation, however, has revealed the fact that these bushes freshen up in from a week to ten days and can be easily found and pulled the second time over. In the future it will be the policy of the Idaho eradication force to cover Swamp areas twice where necessary, the second eradication to come from two weeks to one month after the first.

Scout crews have found it very difficult to alter their style or method to suit the various eradication types. This was expected and scout crews have profited by their early mistakes. It is hoped that scout crews will be trained to such an extent that they can be used on any area interchangeably with normal and satisfactory efficiency. Checking of scouted areas has proven that too much care cannot be exercised by the scout crews in determining the spacing between men.

During the months of July and August, or the fire season, too much care cannot be exercised in fire prevention. We wish each man to feel a personal responsibility in prevention and suppression of fires. No fires have yet been caused by an employee of the eradication force of Idaho and we want that record to stand for all time.

The manner in which many men have pitched into the details of orderliness and sanitation of camps is greatly appreciated. This is one of the prerequisites of woodsmanship ability and will be an important item when moving time comes as well as in future work.

Clarence C. Strong, Supervisor in Charge.

Here's One on the Public

Inquisitive fisherman last Fourth: What the deuce do you fellows do with all those string lines?
Roy Hall: Mister, we catch a chipmunk, tie the string to his tail and then we follow him in order to study his habits.
I. F.: Aw, go to Hell, ya big bum! (I wish to mention here that the I. F. was a very small man. This is for the benefit of those who know Roy and wonder how he got that way.) (Camp 2 - Idaho)

* * *

Meals make up a great part of our social functions. Our group breakfast together at 6:30 A. M. and dine in elegant style in the evening. Limited capacity alone prevents an uninterrupted and perpetual dinner. The group is divided at noon, but each division has its own picnic lunch.

(Camp 3 - Idaho)

EXPERIMENTAL RIBES ERADICATION IN CALIFORNIA

Experimental Ribes eradication work in California is being carried out at Strawberry near the Stanislaus River in the Stanislaus National Forest about 30 miles east of Sonora, California. Work was started on May 6 by three crews and one scout crew. The following table gives a summary of the results for June.

Experimental Ribes Eradication - California

Eradication Type	Acreage	% of Total Acreage	Ribes Pulled			Ribes per Acre
			G. roezli	R. nevadense	Total	
Stream, mature timber	103.6	7.2	3,377	5,309	8,686	83.8
Sugar pine-fir, mature	337.5	23.4	11,083	757	11,839	35.1
Sugar pine-yellow pine, mature	998.9	69.4	6,264	401	6,665	6.7
Totals and averages	1440.0	100.0	20,723	6,467	27190	18.9

The work in California has been in areas which represent much easier working conditions than were encountered in Idaho. The eradicators have found about one-tenth as many Ribes per acre as the crews in Idaho. Later in the season they will work in more difficult conditions.

An analysis of the live stem data for over 1200 G. roezli and 300 R. nevadense gave an average of 9.93 feet for G. roezli and 20.7 feet of live stem for R. nevadense.

Studies were inaugurated last year to determine how thoroughly a Ribes must be eradicated so that it would die. Checking these plots this year in California as well as an examination of some of the area eradicated last year proved conclusively that if any part of the crown is left the plant will sprout.

Even in cases where large roots are left after a year these roots are still alive but it is doubtful that they will grow.

Rechecking of eradicated cultivated black currants in Idaho and Washington have given a similar result.

* * *

One of the new men on a crew located one of those "enormous" lacustre and was unable to pull it. His foreman came to his assistance and extracted it for him. With unblushing innocence, the same man, when finding another lacustre of similar magnitude, calls out to his foreman, "Here's another one for you, Bob!"

The lesson for foremen: Don't let yourself pull too many bushes for your men. You know what happened, Al Quine. (Camp 3 - Idaho)

* * *

Camp 2 has just finished a block of 50 odd acres, designated as a training area, in which one hundred thousand Ribes have been pulled for an average of 1900 per acre.

PERMANENT BLISTER RUST PERSONNEL AND THEIR PROJECTS

Anderson, B. A. - Assistant in Ribes Eradication, Idaho.
Benedict, W. V. - Ribes Eradication, California.
Bedwell, J. L. - Control Reconnaissance and Cooperative Demonstration, Idaho.
Bouillon, Mary - Stenographer, Sacramento.
Calhoun, R. - Special Disbursing Agent and Principal Clerk.
Felch, G. A. - Cultivated Black Currant Eradication, Washington.
Fellows, A. M. - Stenographer, Spokane.
Ganoung, B. A. - Assistant in Black Currant Eradication, Washington.
Geil, H. F. - Blister Rust Agent, Pend Oreille Timber Protective Association.
Glasgow, A. H. - Assistant in Ribes Eradication, Idaho.
Goodding, L. N. - State Leader in Oregon.
Hubert, E. E. - Cooperative Agent, Idaho.
Johnson, C. H. - State Leader in Montana.
Kenyon, E. C. - Control Reconnaissance, California.
Klatt, L. E. - Head Stenographer, Spokane.
McWold, M. L. - Assistant Disbursing Agent and Clerk.
Meyers, R. E. - Blister Rust Agent, Potlatch Timber Protective Association.
Millick, S. K. - Stenographer, Spokane.
Offord, H. R. - Experimental Chemical Eradication.
Painter, W. F. - Blister Rust Agent, Clearwater Timber Protective Association.
Patty, F. A. - Assistant in Ribes Eradication, Idaho
Putnam, H. N. - Rate of Spread of the Disease.
Riley, M. C. - Assistant in Control Reconnaissance, Idaho.
Rockie, W. A. - Ecological Studies of Ribes, Idaho.
Root, G. A. - State Leader in California.
Simcoe, P. S. - Assistant in Ribes Eradication, Idaho.
Stillinger, C.R.- Education and Quarantine work.
Strong, C. C. - Ribes Eradication on National Forests, Idaho.
Whiting, G. M. - Blister Rust Agent, Coeur d'Alene Timber Protective Association.
Whiting, H. L. - Blister Rust Agent, Priest Lake Timber Protective Association.
Wyckoff, S. N. - In Charge of Western Office.

DISCOVERED! THE BLACK CURRANT'S GOAT!

A lady in California, recently, after being informed of the importance and necessity of having the English black currants on her property removed, gladly consented to give up her bushes after the inspector had granted her request that she be allowed to feed the foliage to her goat. Several pictures of this "currant event" in the life of the goat were taken. The milk from "black currant fed goats" is considered to possess even greater medicinal properties than English black currant jam. (Root - California)

OREGON BLISTER RUST PROJECT

F. P. Sipe

The blister rust study project in Oregon is at present located in an experimental reforestation area of the Mt. Hood National Forest. This area, comprising about 650 acres, is situated on the north and south slopes of Still Creek, an area that has been heavily burned over in the past, and over which very little or no natural reproduction was taking place. A large per cent of the planted trees are western white pine.

The outstanding aim of the project is to start, and carry as far as possible in one season, ecological studies of the Ribes of the region. In order to do this, definite plots are being laid out and staked with permanent stakes. Each plot is established with some definite aim in view, and, as far as possible, a separate plot for each distinct set of conditions or type of environments. It is the intention to revisit each of these plots from year to year, and study carefully any changes that have taken place.

A small eradication crew is working in connection with the project. This crew is working out such problems as best methods of eradication for the region, efficiency of eradication, etc. The eradication is carried out in close cooperation with the ecology studies; in fact, the ecological significance of the eradication is considered of first importance.

Some problems that we hope to throw light on in connection with this work may be stated in a general way as follows: What is the life history of the two species of Ribes, R. bracteosum and R. sanguineum in this region; that is, when do they come into an area, when are they at their best, when do they decline and disappear, and how do they spread? What method of eradication is best for each species of Ribes? How permanent is eradication of each species of Ribes in different kinds of habitats? Can a system of forest management be worked out for this region, that will be effective in combating future damage by blister rust?

Two areas have been laid out up to date and eradication is being carried out over each area. Both areas are on south-facing slopes, one being particularly good as a R. bracteosum Stream Type eradication area; the other combining dry hillside and R. sanguineum with moist brushy draws and abundant R. lacustre. Permanent ecology plots have been laid out in each of these areas.

* * *

The eradication of the wild black currant, R. petiolare, by means of chemicals appears to be possible since a recheck this year of the plots shows a 96 % kill. More work is necessary on the white-stemmed gooseberry, G. inermis and the prickly currant, R. lacustre.

SAVING OUR FORESTS

From the Idaho hills
Comes a story that thrills
And stirs a nation's soul.
For the worst is to come,
We'll work till we're numb
The Blister Rust calls for a toll.

We yank and we pull,
With the strength of a bull,
To rip its grasp asunder.
So come you all,
Who have heard the call;
We shall stop this beast from its plunder.

We fight through the brush
In our attempt to crush
That terrible pest of the trees,
And tear up the ground
For the roots all around,
Till we've worn the skin from our knees.

The Ribes to kill
With a heart and a will
Is the thing we aim to do best.
You'll remember us, too,
By the things that we do
In saving this silvan West.

We'll have to fight,
For right is might
In the wonderful land of the Free.
For fight we must
With this Blister Rust,
To save the White Pine tree.

Donald J. Moore

* * *

Last week-end we participated in a bathing party at our summer resort. Prominent among the guests were C. C. Strong, Frank Patty, Carl Peterson, all the "camp bosses," and several members from the various camps, who failed to leave their names on the register. The party extended well on into the evening and a clean time was had by all. Our appreciation for such a time is extended to Peets Soap and the delightful hot water with which this camp is provided. (Camp 3 - Idaho)

* * *

California's black currant law has hit the great as well as the lowly. The boys have eradicated bushes belonging to Clara Barton and to Mary Garden. It's not every summer job that brings a fellow in touch with the First Hundred-Thousand! --T. D. Mallery.

DESTROYING RIBES WITH CHEMICALS

H. R. Offord

After you have pulled lustily on a stubborn Ribes, the while a hot sun is shining from a cloudless sky, you may well consider the chemical eradication of Ribes from a strictly humanitarian angle. There are other reasons.

Have you ever seen Ribes petiolare and Grossularia inermis growing in their favorite haunts? If not, picture a rather broad, flat valley of alluvial bottom, perhaps half a mile wide. A good sized stream flows lazily across the valley floor in an extremely tortuous and aggravating manner. The ground is covered with thick brush, willow and alder and Ribes. --Wow!--great, solid banks of R. petiolare hug the stream edge, back washes and sloughs, with G. inermis firmly entrenched and attempting to strangle the willow and alder a little further back from the water's edge. A site for the gods, indeed!

You can realize that pulling out these heavy concentrations of Ribes by hand would be a very laborious as well as a costly undertaking. We are hoping to develop a practicable method of destroying Ribes in these locations by simply spraying a toxic solution of chemical on the aerial parts of the plants. This summer there will be eight men busy on this project in Idaho and California. The main chemical eradication camp will be located at Bovill, Idaho.

SCOUTING IN IDAHO ERADICATION

Frank A. Petty

A brief explanation of scouting is necessary because it is a new project which was started last season. The scouts this year are divided into extensive and intensive crews. The extensive scouts run out the block boundaries, using a two-chain tape with a trailer, Forest Service compass and Abney. A type map is made at the same time which includes all the important points such as ridges, streams, trails, roads, rock-slides, cabins, section lines and section corners. No special effort is made to relocate section lines for this work. The trails, streams, roads, and ridges serve as boundaries much better than a section line would. When the natural boundaries cannot be used, then paper and string or colored string are substituted. The last named is probably the better boundary marker of the two because it means the elimination of the paper which is rather awkward to drop on a line. The white string is laid by the crews to mark the ground which they have eradicated.

Each block has from three hundred to a thousand acres in it and can be sub-divided into working units by the camp boss.

Interior strips are run by the extensive scouts through the

blocks at different intervals depending upon the size of the block, the topography, and number of Ribes. A box compass is used to run these strips and the distance is obtained by pacing. The blocks are then plotted on a map so the information can be used when the eradication is done. Type maps are made with special emphasis being placed on the number of Ribes.

The intensive scout crew is merely a crew of picked men working at wider intervals then the ordinary crew which pulls Ribes almost entirely in the swamps and creek bottoms. The distance between men varies from ten to seventy feet, depending upon the number of Ribes and the density of brush. The scout crew consists of three or four men and a foreman working in the line with his men. Only in places where Ribes are very numerous does he check behind them.

There are now nine scout crews working in all the camps and there will probably be two or three more added to the present list before the middle of the summer. The training period for the scouts has passed and from now until the end of the season, they will be showing the best results.

With the pick of the men on scouting, we hope to establish a new record this year in efficiency and the number of acres eradicated per man day. This will bring down the cost per acre and still give the white pine adequate protection.

Here I want to express my appreciation of the way the scouts have started out to make this project a success.

* * *

What shall we do with a man:

Who is always losing his lunch?
Who cannot see Ribes?
Who pulls ninebark for viscosissimum and vine maple for lacustre?
Who thinks a contour is a wide trail through the woods?
Who wonders who is going to gather up the string after the crews are through? (Maybe it was his way of hinting for the job. He may have it for all there is in it!)
Who needs a slide rule to determine his Ribes count?
Who pulls Ribes in his sleep? (That is, at night. They don't seem to find them when they sleep in the day time. Sad to say, some are not here now to bear testimony to the fact.)
Who asks you where the rock slides came from and how soon we are going to fight fires? In other words, whose questions go away back into the past and into the future and cover all the time and space in between.

ANOTHER ERADICATION NEEDED

Richard Lillard

A young man was slowly picking his way through a dense fir thicket, with apparently the intention of making a spot near an alder some few feet away his goal.

He carried a grub hoe and at various intervals uttered the peculiar cry, "Check", stooping then to ply the ground.

Unseen beneath the man's intended goal something lay motionless. Its green eyes glared dire hatred as it bulged and rolled them to follow the young man's approach. The hideous monster was many-legged and had a lean, sinewy, luridly banded body. Great vile hairs, covered with unspeakable filth exuded from over its matted body. It slowly opened and closed its bewhiskered jaws with a turbid rasping grind. The spotted gossamer wings lay quivering, the legs were tense and crouched. The attitude was that of a starved cougar poised to leap upon an unlucky deer.

The man, the unsuspecting wretch, was to be its bloody prey. Would no kind stroke of fate intervene? The monster twitched with eagerness. God, how hungry he was! The man looked happy and well fed. The obscene creature lashed its tail in fury as it thought of possible defeat at the hands of the two-legged adversary. But it would do anything now--no meat, no food for three days. Bloody lust made its eyes glitter with an unholy sheen. The man was almost beneath the alder now. How blind he was not to see his evil valedictor lurking in the shadows! Once more the man cried, "Check" and bent over the earth--now was the time. The pitiless miscreant of the shadows crouched to spring upon the helpless form; its feeler oscillated frantically at the exhilarant thought of flesh and blood; and with a shriek of triumph it sprang to the man's back . . The man sank stiffly almost to the ground for a minute, then with a cry of baffled rage and joy he jumped erect and held up his hands. "That makes Thirty-four I've pulled--Say! Damn!!!" He vigorously swatted his back. "That's at least the five hundredth this morning. Say, fellows, I think the Blister Rust Office ought to appropriate a big sum to eradicate mosquitoes ahead of our crews." Swat--"There's another one." "Look out!!!"

Author's Note: This is by no means a subtle plea for a bigger B. R. budget; rather it is a detailed description of a very common crew incident as seen by an invisible third person . . .

* * *

During May and June the cultivated black currant was eradicated in and around Spokane. Eighty plantings consisting of 337 bushes were eradicated. As a result of extensive educational work many reports of plantings were telephoned into the office and several parties called at the office regarding their plants. In only four cases did the parties refuse to have their bushes eradicated by the scouts. These will be removed later by the state inspectors!

WHERE THE RIBES WERE MISSED IN 1926

The following table gives the results of checks for missed bushes which were made on the eradication areas in Idaho and California during the 1926 season. Figures given are percentages of the total missed bushes which were found by the checkers.

Site	Percentage of bushes missed		
	Idaho %	California %	Both %
Rocky outcrop	1.2	6.3	2.3
Raised ground, base of tree	5.2	3.3	4.8
Damp slope	3.4	20.0	6.7
Alder bottoms	1.8	1.7	1.7
Upturns	3.5	0.0	2.8
Windfalls	8.6	4.7	7.85
End of strip	0.6		0.5
Decayed stumps and logs	21.6	0.5	17.3
Mulch of decayed branches	25.1	6.3	21.3
Dense brush	7.6	34.7	13.0
Creek bank	0.6	13.0	3.1
Covered by pulled Ribes	1.7	1.9	1.8
Opening in brush	8.0	1.6	6.7
Pine needle carpet	0.1	0.0	0.05
Dry slope	2.6	3.7	2.9
On trail	5.4		4.3
Not visible from above	2.4		1.9
Trampled under foot	0.6		0.5
In bear clover	0.0	0.9	0.2
Dry Draws	0.0	1.4	0.3

The following table classifies the missed bushes according to surroundings:

	Idaho %	California %	Both
Hidden in brush	11.6	13.5	11.9
Partially hidden in brush	41.8	38.2	41.0
Visible above brush	14.8	4.7	12.7
No brush near Ribes	31.8	43.6	34.4

* * *

The crews are pulling an unusually large number of Ribes per acre this year and practically all of the bushes seem to have developed enormous root systems. In fact, Jim Thomas, one of our foremen, reports his men pulling one bush with a pair of Siamese Twins hanging on to the roots.

THE ERADICATION MAN

Anonymous (California Eradication Camp)

His tasks are many and varied,
The eradication man.
He works the country over
With headquarters at Spokane.

He must give ear to the challenge,
For to him is given the trust
To protect our white pine forests
From the blight of Blister Rust.

He gathers men in the springtime
From school and college hall,
With only the strong and the robust
Answering the Ribes call.

From the cities heart he takes them
To white pine lands they go
And pitch their tents for the summer
Near some stream's steady flow.

He marshalls the ranks of the chosen
And gives them the pick and the hoe
To conquer the mighty Ribes:
The forests deadly foe.

He gives them careful instruction
And makes it very clear
To leave no crown or root stock
To show up the following year.

They dig out R. nevadense
And grub up hallii;
Roezli suffers the same fate
As all of its kind nearby.

They work through the long hot summer
'Till the crickets begin to call.
With packsack they then start homeward,
For this is the sign of fall.

With a heart full of satisfaction
And a face all covered with tan;
With glowing health and happiness
Returns the erad. man.

With a richer fuller experience
And many a new-born plan
He returns to the Spokane Office
To join the Blister Rust clan.

FOURTH SEASON OF BLACK CURRANT ERADICATION STARTS IN CALIFORNIA

G. A. Root

On June 13th, the following men commenced the fourth season of black currant work in this state: T. D. Mallery, H. L. Beeson, J. E. Spurlock, E. Anderson, S. D. Law, and F. R. Brett. The first three men are "old timers" at the game, two of them having been employed for previous seasons. Eleven counties have been tentatively set aside for completion this year. We may be aiming our guns too high.

The work started in Sacramento and Marin counties respectively with the result that at the end of the month, Sacramento County (Sacramento excepted) was completed and one-half of San Joaquin and Marin counties. The number of plantings and bushes found are as follows: 4 and 8 in Sacramento County; 9 and 69 in San Joaquin County; 11 and 57 in Marin County and 1 and 8 in Placer County, making a total of 25 plantings comprising 142 bushes.

Blister Rust Camp 1 Proves Good Samaritan

On evening of June 19th a Studebaker sedan ran off the grade just above camp. There was 100 per cent turnout of men and tools to construct a new road up to the grade. Later in the week the men were treated with tobacco.

On July 4th part of the men gave assistance to an unfortunate driver of a Stephens car. His appreciation was shown by nearly fifteen dollars worth of tobacco and candy. The following is his note enclosed:

Blister Rust Camp 1
Near Honeysuckle Ranger Station

Gentlemen:

Please accept the contents of this package in the same spirit as it is sent; with kindest regards to the best bunch of real men it has ever been my good fortune to run into when in need of a helping hand. Thanking you all a thousand times,

Sincerely yours,
(signed) A. P. Hay

* * *

The reconnaissance work in California is being done in the vicinity of Dorrington in the Stanislaus National Forest. During the month about 60 sections were completed. The reconnaissance indicates that exposure is almost a certain index to eradication types for on north and northeast exposures occurs a sugar pine-fir (*Abies concolor*) type while in the opposite exposures occur the sugar pine-yellow pine type. Generally the areas thus far covered are free from many Ribes, what few there are generally occurring along streams. A small area of logged-over land showed a marked increase in Ribes per acre over the unlogged areas.

CURRANT TOPICS - A VOGUE OF HAND LOGGING

Richard Lillard

Before us lay a deep, damp gully packed with exceedingly large R. nevadense, which were still enveloped in the morning shadows cast by the rocky ledge to the east. The Ribes were tall and matted with willows and choke-cherries. Long before, a giant pine had tumbled down into the gully, covering many of the choicest Ribes' crowns, or at least making very indefinite the connections of several meandering stems. 'Twas a bewildering sight to us, but our courage was bolstered by the special presence of two good logging axes.

"With Ribes to the right of us,
Ribes to the left of us
Men stumbled and blundered,
For in that damp gully
Grew more than six hundred."

"No regular formation now!" the foreman cried, "Just jump in anywhere and go to it."

Our normal Ribes tactics were not pursued. Axes clinked and grub hoes crashed as though this were the only patch of Ribes on earth. Surprised willows found themselves sailing through the air to the rapidly accumulating heap of eradicated debris.

"Who's using the axe? I want it quick," was the constant cry. Now and then a puffing man up above would shout, "Heads up below--a rock!" and a boulder would crash down tearing and slashing the underbrush.

Soon all men working below came up hill, for the volley of stones, currant crowns, logs, dirt, and trees was too much, or perhaps they feared being drowned in a flood of perspiration.

In due time old Sol began to cast an interest in our murderous proceedings, but he abated not the vigor with which a galaxy of mosquitoes and gnats attacked our assault upon the "Last Stand of General Ribes."

During our advance every known method of hand logging was involved. We coudn't find a single Ribes left to dig. Were we done?

"Now there were Ribes behind us
Dead Ribes behind us
All torn asunder
There fated to wither and die
Lay the six hundred."

We finished sooner than we had expected. We had thought to be thus occupied for half a day but less than four hours had elapsed. We were through and what had we done?

A verdant Sierra ravine was no longer as it had been at sunrise. It was slashed and trampled; most of its former flora was already beginning to wither. It would probably never forget the invasion of these brazen Hussars from somewhere beyond the mountains, who had laid waste its shrubbery and scarred its surface.

To the crew this had been but one incident among many. It picked up its tools and trudged on to make another strip along the ridge with only a few parting glances at the havoc of the morning. (California)

RIBES ECOLOGY

W.A. Rockie

The ecology crew went into camp at Boone Mill on June 15 and 16, with Allen, Axtell, Ellison, Hammar, Havens, Illichevsky, Jones, Kramer, Luke, McFadden, Ruehle, Shamberger, Dr. Hubert, and Rockie as members.

The eats were good, and it rained and rained and rained. The tentage was deficient as shelter for rain. As protection from sunshine, they would have been very good, but we have not needed protection from sunshine thus far this year. Fortunately, however, new tents have been obtained, and we will now be quite safe from further water damage. The first issue of canvas merely strained out all the dust particles from our nightly bath.

During the early part of the month several likely areas on good sites were closely examined, but no bushes of 1927 germination were found. On June 16 seedlings of Ribes lacustre were found quite commonly on Meadow Creek Burn #1 at certain points within the area. These seedlings had apparently been through the ground from one to two days to as much as two weeks.

On June 19, seedlings of R. viscosissimum were found on Boone Cutover Burn #2, which had apparently been above ground two weeks and less, varying with individual bushes. On June 30, this area was again examined, and other Ribes which had not been found on the previous date were found, indicating that these seedlings come through the ground chiefly during the month of June, during the year 1927. Apparently, seedlings were still just bursting through on the latter date.

On June 19, seedlings of R. lacustre were found on Boone Cutover Burn #1, which were from one day to a week or more in age (estimated). Some seedling plants too small to identify were examined and tagged. Two adjoining clumps of seedling plants, which were so minute as to make field identification unreliable, were used. On June 30, these clumps were again examined, and it was found that R. lacustre had been correctly tagged in each case.

On June 30, a large number of these small Ribes seedlings were closely examined. Some of the actual seeds were found still attached to the base of the plant stem. It was also found, from a total of several hundred such seedlings which were studied, that the base of the stem was always at the contact line between the duff and the mineral soil.

These seedlings were found to have germinated where there was no duff and when there was a duff mantle of at least two inches. The latter situation was encountered, however, only where there had been a scorching of the surface duff by a light ground fire.

THE OREGON BUNCH

L. N. Goodding

The Oregon bunch of eradicators and ecologists is green save for four of the veterans. Pendleton, the 200-pound steam-roller, has seen service in Prospect and Sonora in eradication; Brick MacLeod has seen service in Idaho and Cheekye; Sipe, the reticent, was with the ecology bunch in Idaho and did reconnaissance in Oregon last year; Goodding has seen service in so many blister rust lines that he is the proverbial jack-at-all-trades, with a decidedly limited knowledge of either eradication or ecology. J. B. Simmonds may not be a Ribes hound, but he is no mean nor green cook. Say, boy! he has already dished us up pie and cake which, in a contest, would keep mother guessing for some time. Evinger came from Missouri to be shown. He came through California and thinks Oregon beats it several miles. By training and adaptability he fell into the position of chief botanist of the party. Five boys came direct from the cow college, O. A. C.; Lund, Chief Chicken, lean and wiry; Gray, the ardent fisherman, who sees big ones if he can't catch them; Lyle, champion diver, who doesn't even stop for the bottom of the pool; Dutcher, who, they say, is a musician, though he has not yet tried it on the blister rust bunch; and Woodside, who walks 4 miles to Swim every evening after work; all the crowd seem to know what it's about. Finally, Eugene; the city which looks down upon the cow college and supplies the state with doctors and lawyers furnished the beanpole. All the same Goodall is there on the typewriter, for he makes the darn thing hum and the whole camp knows he is a good sport.

There are some other workers in Oregon besides the crew of mountaineers. Fehren is bound for the Yale Forest School next fall but he had to stop long enough in Oregon to fatten his purse a bit. He is one of the black currant war-horses, having seen two summers in black currant eradication. He is doing nursery inspection work.

Edmunds was the first man to see blister rust in Oregon. O.A.C. graduate, veteran of the world war and scout without a peer, he is spending the time up to July 20 in nursery inspection after which time he will assist Putnam in western Washington.

Finally Stephens, who is not exactly new to blister rust, having served under Percy Melis at Prospect, started nursery inspection July 1. Oh, yes, he is from the cow college, too.

There may be better bunches than the Oregon gang. I am not sure. I am sure, though, that there are plenty worse. Come to see us. We will try to do our stuff and show you to boot what a good cook we have.

* * *

We heard that Bill Guernsey and Don Waldo completed their meat box the first of the week and that Frank Shane, cook at No. 5, remarked that he hasn't lost a fly yet. (Camp 4 - Idaho)

Army Discipline

All training acquired previous to employment in the eradication of Ribes seems to contribute its share toward making the work more efficient. Ed Becher, having recently received his commission in the Reserves, has developed his crew into an efficient machine whose speed and movement is typical of army style. Such development has gone to such a stage that when counting off, while running in scouting formation, the clear sharp calls were heard: "One! Two! Three! Four!" and then from the string man, with one or two years served as a 'rookie' came "One!"

(Camp 3 - Idaho)

* * *

A recheck of the black currant eradication in the two northern counties of Idaho during June revealed seven additional plantings. On June 20 eradication work was begun in southeastern Idaho. This region seems to contain many cultivated black currants as indicated by the fact that 38 plantings consisting of 385 bushes were eradicated in June.

* * *

While going through some scouting territory, Bob Hungate asked his crew to "count off" for determination of interval. Quite according to form, the first man called "One;" his neighbor, the newest man on the job, unaccustomed to all the methods of a crew, followed in close harmony with "None." (Camp 3 - Idaho)

* * *

In order to become better acquainted and to promote a friendly rivalry between camps, we challenge each and every camp to a contest for supremacy in horse-shoe pitching, track events, wrestling, and any other test of endurance and skill that is named by the rest of the camps. If you are interested, get in touch with Al Quine. If not, we will consider ourselves as the supreme beings of physical perfection.

(Camp 2 - Idaho)

* * *

During June, 62 sections of white pine land about equally divided between the St. Joe, Kaniksu and Pend Oreille national forests were reconnaissanced.

* * *

EDITOR'S NOTE

We are very much encouraged by the amount of material for the first number of this news letter. It was all good. Some was not used in this issue but will appear in the next number. The material submitted shows the real blister rust spirit. After reading this number I hope that you will continue your efforts. If you have enjoyed it, but have not contributed, get busy and send us something. If all will contribute, we can make this news letter worthwhile. It's up to you.

PERTINENT FACTS REGARDING BLISTER RUST

1. It is a plant parasite and not an insect.
2. It spends part of its life on the white pines and part on the Ribes, wild or cultivated.
3. It attacks all five-needled pines.
4. It attacks all Ribes, but some much more severely than others.
5. It does not spread from pine to pine.
6. It does spread from Ribes to Ribes.
7. It spreads only a short distance from the Ribes to Ribes.
8. As a rule it will not spread from Ribes to white pine over 900 feet. However, it may spread for a mile from the English cultivated black currant to the pine.
9. It will spread from one hundred to one hundred and fifty miles from the pine to Ribes.
10. It can be controlled by eradicating the Ribes in the white or sugar pine regions.

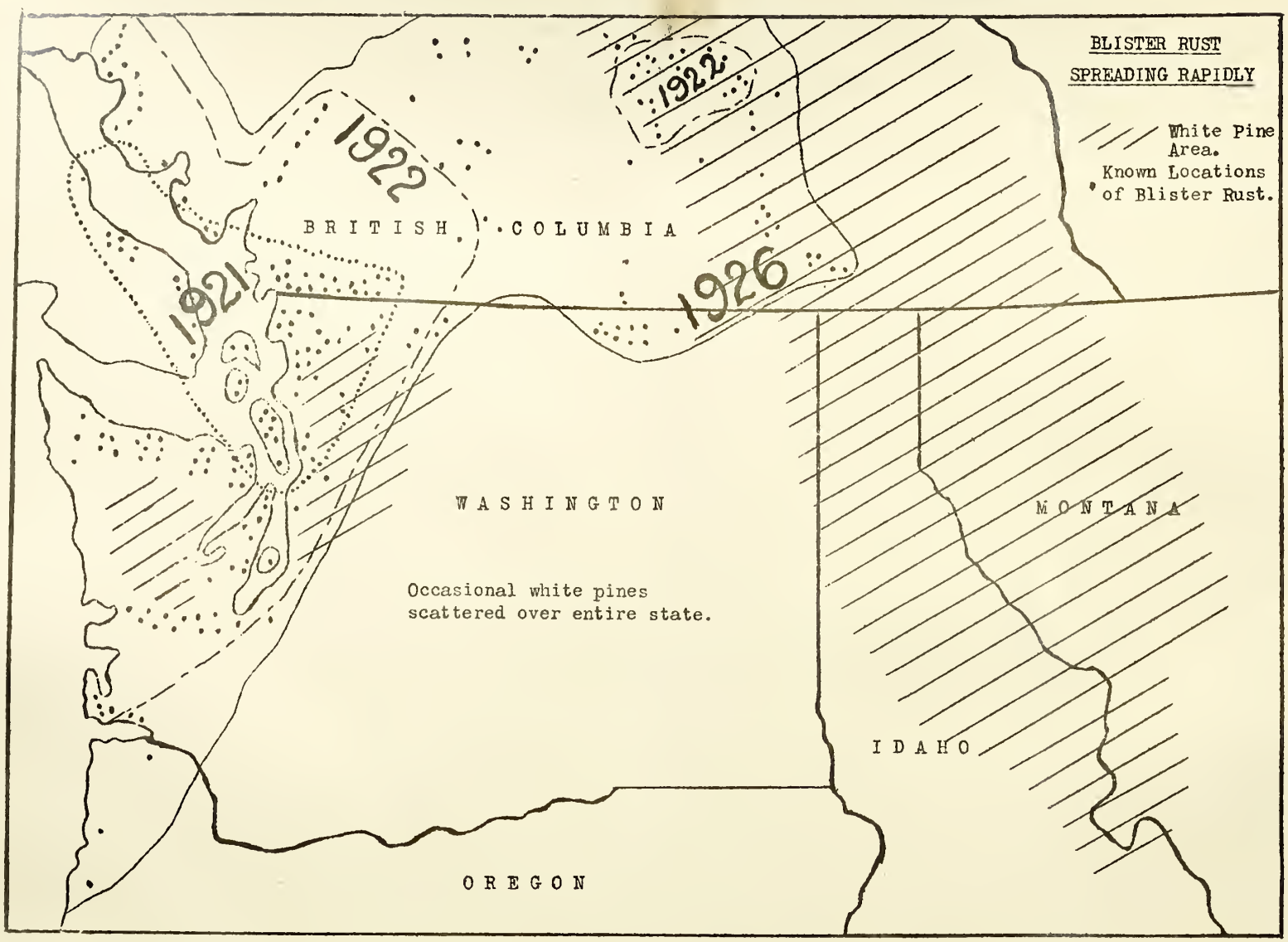
ADJUSTABLE SHOULDER STRAPS FOR STRING BOXES

A new system of shoulder straps has been developed and is now being used successfully on all our string boxes. The system is very simple and easily made. Its chief advantage is that the straps are adjustable so that any of our boxes will fit any of our men regardless of the size of his shoulders or the girth of the waist. The mechanism, which, though quite simple, is ingenious, consists of two holes bored in each side close to the back board, one at the top and the other at the bottom. This gives two holes, at the top, directly opposite each other, through which the rope is threaded. Likewise, at the bottom there are two holes through which both ends of the rope are threaded, one from one side and one from the other. This gives you the two loops for your shoulders and the loose ends are tied about your waist. This arrangement when mounted automatically adjusts itself to the body of the wearer. In this way, the disagreeable task of carrying the string box can be assigned to a different man each day, regardless of his avoirdupois or the dimensions of his torso.

DISTRIBUTION OF THE DISEASE

White pine blister rust is distributed generally over the European continent. In the eastern part of the United States, it is abundant in the New England states and New York, while limited areas are infected in the Lake states. It has been found in a few localities in Pennsylvania and New Jersey.

In the West, it is generally distributed over the white pine region of British Columbia and on the coast region of Washington. It has been found on currants in the Okanogan region in Washington and on the coast region in northwestern Oregon. The accompanying map shows the distribution in the West as it is known today.


BLISTER RUST
SPREADING RAPIDLY
White Pine Area.
Known Locations of Blister Rust.
1922
1922
1921
1926
BRITISH COLUMBIA
WASHINGTON
Occasional white pines scattered over entire state.
MONTANA
IDAHO
OREGON

Summer B R News letter No. 1
West. Office

2

SUMMER

BLISTER RUST NEWS LETTER

No. 2

U. S. Department of Agriculture
Western Office of Blister Rust Control,
Spokane, Washington.

ERADICATION EXPERIMENTS IN CALIFORNIA

Mr. Benedict reports as follows:

"Different crew formations were tried, in different Ribes concentrations and under various working conditions to obtain additional information on the formation best suited to conditions as existing in this locality. The five man crew with foreman checking behind, the four man crew with foreman checking behind, the four man scout crew with foreman working in line and the three man scout crew with foreman working in line, were tried during the month. The data secured thus far indicate that the three man scout crew, with foreman working in line, will get more Ribes and more acres per man day, in any territory than any other crew formation. The chief apparent advantage of the three man scout crew over the four man scout crew is that when the crews are working in heavy concentrations the four man scout crew is covering a little too wide an interval to be efficient without a checker behind the line. The three man scout crew shows possibilities of cheaper eradication on areas containing more Ribes per acre than is generally conceded to be Scout territory. The limiting factor in the adoption of such a formation is the limit in number of men suitable to such work. Such a formation requires a hardworking, thorough and conscientious personnel."

The following table gives a summary of the results of this experimental work, for July, on the Stanislaus National Forest.

Type	Acreage	Percent of Total Acreage	Ribes Pulled			Ribes per Acre
			G. roezli	R. nevadense	Total	
Sugar pine-Yellow pine, cutover	1073.1	61.2	22271	767	23038	21.5
Sugar pine-fir, cut over	627.8	35.8	72259	4430	76689	122.2
Stream, cutover	52.0	3.0	11762	20554	32316	621.5
Totals	1752.9	100.0	106292	25751	132043	75.3

DAMAGE BY WHITE PINE BLISTER RUST

The most accurate idea of the menace blister rust is, has been obtained from three plots which have been established on the coast region of British Columbia at Daisy Lake (about 30 miles north of Vancouver.) Plot I and II were established in 1922 and Plot III in 1923. The rust has been in this locality for about 14 years.

Plot I covers one-third of an acre and contains 178 white pine trees varying from 5 to 50 feet high and up to 9 inches D. B. H. with the majority ranging from 15 to 20 feet high. This area has 205 wild black currants and 180 prickly currants.

Plot II covers two-thirds of an acre and contains 443 trees ranging from saplings to a few trees 13 to 20 inches D. B. H. and 90 feet high. There are 82 prickly currants along one side of the plot only. The plot is within 100 feet of plot I.

Plot III covers one-fourth acre and contains 189 trees of about the same size as plot I. There are no currants or gooseberries on the plot. About 300 yards away there is a heavy growth of wild black currants and within 30 yards scattered bushes of prickly currants and red flowering currants.

The following table shows the increase in damage on those plots since they were established:

	Plot I (178 trees)		Plot II (443 trees)		Plot III (189 trees)	
	Infected	Dead	Infected	Dead	Infected	Dead
1922		71	394			
1923		129	425		80	
1924		161	430		103	
1925		172	439	55	112	
1926		172		83	146	

An examination of 5248 white pine on 160 acres about 12 miles south of Daisy Lake, B. C. at Cheekye in 1923 showed 1383 of these trees were infected during the last eight years. Six hundred fifty-six of the infected trees were dead.

An examination by strips at Brackendale of 8556 trees from 5 to 80 feet tall showed 1998 trees infected and 3.5 per cent dead.

As an example of how vigorously a tree may be attacked, a good illustration was found at Daisy Lake. A 36 year old tree had 353 cankers or an average of 7 per branch. Another tree 28 years old had 316 cankers or an average of 10 cankers per branch. In cases of this kind all of the branches are killed before the fungus reaches the bole and the tree dies.

On an average of about 10 per cent of the eastern white pine in New York and the New England states are infected.

European countries are discontinuing the growing of white pine because of the blister rust.

* * *

As the cook is such an important part of this social activity, they--for we have had three--bear special mention. First we had a man and his wife. They both claimed to be cooks--and they were-- but what could we do for a flunky? Since then we have had two cooks. With one, the boys got weak eating too little, and with the other, they got weak eating too much. One guess to name the one we have now. (Camp 3, Idaho)

THE DAYS WORK

D. R. Miller (California Eradication Camp)

Early in the morning when all is very still
Our blissful sleep is ended by the old gong's sudden shrill,
At first we just roll over to think a little while,
But soon get up for breakfast in the regular rank and file.

'Ere lunches are quite finished the foreman gives his call,
That means every man be ready for ye got to hit the ball.
With a pick across your shoulder you start out upon the run,
For the heat will soon be dreadful and you want to beat the sun.

We hurry to our separate blocks and each man takes his stand.
We line up in formation and start to clearing land.
There is buck-brush a plenty, yes Manzanita too,
But the hill-side is a barren spot when the Ribes hounds are through.

When first the foreman yells to take the noted fiver,
The way we hit the ground you'd think each a noted diver.
So in a prone position each reports his share of plants,
As far as numbers go the first man has no chance.

The next break in the grubbing is the period at noon.
And this restful breathing hour cannot come around too soon.
Before the lunch is eaten, which we all partake with zest,
It is time for work again; so we get but little rest.

Through afternoon the topics range from football, books and school
To what man first invented the useful Ribes tool.
Then conversation ceases, the time goes so slow;
Until suddenly comes the glad shout, "By George, it's time to go"!

Now many a famous sprinter would very soon give up,
Even though he were a fast man and had won a loving cup.
For when a crew starts homeward all else comes to naught,
They seek now blessed peace from the battles they have fought.

Ah! The comforts of the day, a bath, clean clothes and rest,
A full stomach after dinner and each man feels his best.
Then comes pipes and books and stories, or a good bridge game instead,
Until camp fires burn dimly and all go off to bed.

ECOLOGY

The ecology unit is now divided into four crews, one working in the vicinity of Pierce and Harvard, one at Lakeview on the east side of Pend Oreille Lake and one on Kalispell Creek in the Kaniksu National Forest. In all of these localities strips and permanent plots are being established on recent burns and areas where the natural conditions have been disturbed, in order to determine the re-establishment of Ribes on these areas.

IDAHO

Cultivated black currant eradication in southern Idaho during July has given the following results:

County	Plantings	Plants
Bannock	59	709
Bear Lake	91	699
Caribou	10	126
Teton	9	111
Total	169	1645

The rechecking work in north Idaho was continued until July 31, by that time all territory north of the St. Joe River having been worked. During July 26 plantings, representing 107 bushes were destroyed. This makes a total of 45 plantings, representing 182 bushes, which have been found and destroyed in this area.

BLACK CURRANT ERADICATION

Idaho: The crews in southern Idaho eradicated 169 plantings consisting of 1645 bushes of the cultivated black currant, during July.

The crew which was rechecking the north Idaho territory stopped work on the first of August having rechecked that portion of Idaho north of the St. Joe River. A total of 45 plantings consisting of 182 bushes were found.

California: Black currant eradication work in California has been conducted in Marin, San Joaquin and Contra Costa counties. The first two were completed. Twenty-two plantings of 129 bushes were eradicated. A recheck of territory of eradicated plantings revealed that in 15 out of 40 plantings, resprouting was found. Further, six new plantings of 20 bushes were found.

Oregon: Some rechecking in Oregon is being done revealing some interesting facts. One nursery was found with 500 black currants. They had been grown from seed since the Oregon Black Currant Law went into effect. Another fellow was found selling black currants in the Yamhill Market in Portland. His bushes were destroyed.

Sixty black currant bushes were found within a quarter mile of the Agricultural College at Corvallis. Long before this Goodding should have smelled these bushes through his office window at Corvallis, but Goodding says, "Black currants are not so abundant in Oregon that just anybody can find them just anywhere."

* * *

Heard from a smoke chaser on the mosquito-infested Pend Oreille National Forest: - "It sure don't take long to spend the night here."--M. C. Riley.

ANNA OF THE WILDS

C. H. Johnson

On our first night on Bear Creek, Chapman, Stanton and the writer had gathered about the camp fire to relate our experiences of the day. In the midst of our discussion we were interrupted by a slight stir followed by a sort of muffled sound resembling a cough. Stanton seemed very much excited, but Chapman who had been prowling about that day looking for a lost section corner appeared less concerned and immediately introduced our fair visitor as Anna. It was noticeable that Anna was worried and slow in forming an acquaintance. She was quite beyond approach and after a short visit departed as gracefully as she appeared.

The next night we were all looking our best and wishing that Anna might return, but she failed us and did not appear until the following evening. Evidently Anna cared nothing for looks. Individually she did not express any preference, but seemed more at ease or secure when all three were together.

We concluded that Anna had a home near by, but she was careful not to divulge any of the secrets of her home life. Anna became a frequent and welcome visitor and fared well during our stay. We wondered if those who followed us would protect and comfort Anna as we had done. It was hard to leave, but the best of friends must part.

Anna was a deer, a homesteader's pet, but we loved her all the same.

RECONNAISSANCE

Montana: During July 70 sections in the Kootenai National Forest were completed. 43 sections intensively and 27 sections extensively.

Idaho: The reconnaissance crews working on Federal land completed 344 sections on the St. Joe, 95 sections on the Pend Oreille, 81 sections on the Kaniksu and 116.5 sections in northeastern Washington, making a total of 636.5 sections completed during the month. Sixteen per cent of this work was intensive and the remainder extensive work.

The crews working on private land completed 45 sections on the Clearwater Timber Protective Association, 111 on the Pend Oreille, 43 on the Potlatch, 65 on the Priest Lake and 32 on the Coeur d'Alene, making a total of 286 sections.

California: Reconnaissance in California has been made in the territory between the middle and north forks of the Stanislaus on 28 sections and on 10 sections in the Clavey Creek--Jawbone Creek drainage. Fifty sections were done extensively.

SPIRIT OF CHEMICAL ERADICATION

Give me thornbrush, nettles, buck brush, and spruce,
Put a can on my back and a pump swinging loose,
Pour in four gallons of soup, while I start moving my dogs,
We'll kill all the Ribes and throw the rest to the frogs.

For we are the jolly chemical boys down in Bovill's fair countree,
And we love a happy land where moonshine runs quite free.
The girls wear petticoats in the old fashioned mother's way,
But on many things they are not so dumb, so I've heard folks say.

Make up more solution, boys, we'll drain this old creek dry,
For the honor of blister rust must live and every Ribes must die.
Oil up that pump, Jack, It's smokin' can't you see,
Or all these woods'll be destroyed, along with the white pine tree.

SCOUTING FOR THE DISEASE IN WESTERN WASHINGTON

Mr. Putnam has three crews scouting for the disease on the coast region of Washington. The disease has been found in the past to be generally distributed on Ribes, especially the cultivated black currant in this region. The object of the scouting at this time is to determine the amount of infection on white pine as well as the intensification on the Ribes. One crew is working in the Olympic Peninsula, one on the northern part of Snoqualmie National Forest and one on the southern half of this forest. This work was started during the last few days of July and will be continued during August and September. Thus far, pine infection has been found in only one locality, that is, near Silverton in a plantation of the eastern white pine, Pinus strobus. Indications are that this infection took place during the heavy wave of infection on Ribes in 1921 and 1922.

Mr. Putnam reports "that up the Stillaquamish are more Ribes bracteosum (the wild black currant of the Coast) than I have ever seen before. All along the main river and along the smaller streams are enormous areas of solid R. bracteosum varying in width, but often 200 feet or more wide. The bushes are young trees reaching up often 25 feet in height."

"HE SEES 'EM"

Although not trying to compete with the man from the University of Minnesota who sees at least one deer and one bear each working day, Riley rises to remark that he "sees 'em".

On July 24, while walking down the Lightning Creek trail in the Pend Oreille National Forest, Riley saw a full sized cougar. The animal walked down the trail for about 100 yards before leaving the trail and disappearing in the brush. There is no record as to who travelled the fastest after they parted company. (Reconnaissance)

Hello Editor: -

This camp being number five and the last organized, is well on the way to recovery, situated on Burnt Cabin Creek about half mile from the Little North Fork and approximately nine miles from Hayden Lake.

Being enroute in the season's elimination of Ribes for prevention of blister rust spread, over five thousand acres of scout and close formation work in the Burnt Cabin area.

Strong came along one evening with a collection of minnies, last named cause where we came from we catch fish with them. Said he had been out fishing; guess he had, cause he was all wet.

Peterson and Hornibrook, Inc., are visiting us at the present writing. They are out on their sight-seeing tour of the country. Sure nice to look at the country from the high hills. They mention every once in a while of visiting "Flora" that day. Sure a rather high-headed dame. I'll say! Hornibrook and Pete told us of having seen a Studebaker that had two carburetors--one used up to forty per hour and the other to a hundred. Another fellow mentioned having seen the same car, only it had eight wheels. When it went around corners so fast it was on two wheels, they put out two more and ran right along on four just the same. --No, sir, the first man ain't got a chance.

Well, seeing as how time's about up and we ain't got no dope to mention of interest, will close and spend time looking for a real dope writer for the next issue.

Yours till the Blisters Bust--
and the hills and Ribes are all small ones--(Camp 5)

* * *

It isn't often that we plebeian folk get to laugh at mistakes made by Patty's scouts, so perhaps St. Peter will forgive us when we knock at the pearly gates for our heathenish glee when the boundaries of Block #4 were run last week.

Pete and Ezram (alias Bill for short) started on the traverse across the river from the old logging camp by Picnic Creek and their first bearing was S 40° W. When the day's labor was finished and the traverse plotted, lo and behold! there was a perfect reproduction of the course of Bunyan's hob-nailed cohorts on Paul's famous Round Dime which took place on the Big Onion in the heyday of Paul's career when he logged off North Dakota.

However, we gave them their ration of vittles when they got in.

Gee, Pete, I'll bet Stub will feel ashamed of you when he hears of this.

"WHEN A FELLOW NEEDS A FRIEND."

N. Jones, a diligent, honest, and hard-working crewman of the distinguished Camp 4, being built on the generous proportions we find in those "Body by Fisher" type, and whom Mother Nature had given very lavishly her gift of avoirdupois, and also gifted him with a beaming countenance which betrayed a touch of good nature, was chosen by virtue of the aforementioned qualifications, especially the latter, to perform the arduous task of carrying a ten-pound misused contraption whose chief function is "guiding" but which seems to have been "used to miss" in this case.

It so happened this day that our crew was working in a circle with the previously stated "Knight" on the inside. All went well until we reached (although not aware of the fact) the line we had laid a few hours before. Jones, noticing a plant outside of his territory and which should have been pulled by the preceding string-carrier, stops, wonders, then saunters over, taking time on the way to commend himself upon having such remarkable observing powers--pulled it. He turns to pass on when he notices the line passing around a group of Ribes, thence over a couple of fallen logs, and directly between, two flourishing plants of the variety "lacustre". This was too much for our hero's good nature and he commenced, "The guy that laid that line is a bliggard idiot, it would break a snake's back to follow it!"-- "Why, he should have brought his grandmother along to lay it for him!" (he grabs for one at the same time noticing more ahead) "He--" "That-- -- insignificant worm -- Hey, you fellows! I've got to have some help here."---"That's a d--n poor job if you ask me," he added, with some heat, then continued muttering something that sounded like a prayer??! Finally he arrived at a spot that looked familiar. --Horrors! --Help! --His own line!

* * *

Chemical eradication is presenting some interesting situations. It appears that with the same strength of the same chemical some species are killed with one spraying, while others are not. Apparently each species will be a problem in itself and a chemical which gives satisfactory killing with one species will not necessarily give similar results for other species. The effect may also vary somewhat on the same species in a different site.

ERADICATION IN OREGON

This work is being done chiefly in Stream Types and on burned over areas on special plots which are being made permanent for ecological observations. The majority of the bushes are R. sanguineum (red flowering currant) R. lacustre and R. bracteosum. Forty acres had been completed. Four thousand five hundred twenty-five Ribes having 103840 feet of live stem have been eradicated by one six-man crew. The report states that "a recheck failed to disclose any Ribes left, and a very high percentage of efficiency is assumed".

DON'T ALWAYS FOLLOW THE COMPASS

R. E. Myers (Reconnaissance)

All of us engaged in following the dictates of box compasses have known of compass vagaries in pointing the difficult way through the woods but it is the opinion of the writer that Merrill Chamberlain's compass exceeded all others a short time ago.

Chamberlain was taking Ribes data on a strip and I was following him checking on his count. Everything was proceeding as it should. I was finding a "visky" now and then that he missed thus justifying my position. I heard a quick gasp of surprise -- I took my eyes from the Ribes search and looking past Chamberlain gazed in the limpid eyes of a great black bear, Big? A Whale! For as long as it takes a star to blink, each of the trio stood rather embarrassed. Chamberlain broke first, running through the brush as only a first encounter with a bear enables one to run. Me? Oh I followed him checking as I went. Of course, just what the bear did is a question, although we know he didn't follow us. If he had we would have made Spokane in a few hours. We were headed that way.

Bears are reputed to be harmless to men but Ribes sniffers are so different and he who runs is not likely to revert back to his primal ancestry.

* * *

One of Camp 4's valuable assets is the red-hot 4 piece orchestra. After the duties of the day are over, our worries and cares are gently wafted away by the soft, harmonious murmurs of Orpheus coming from the conservatory in tent #2. Eddy makes a competent leader with his violin while Dykeman on the banjo keeps perfect time for the deep bass notes of Johannasen's baritone. To hear on of Wall's saxaphone solos is to get a glimpse of the very soul of musical achievement.

We let Luveson, our bugler, blow reveille after we are all up and taps when we retire if he can stay awake that long.

Thomas, Unger, Schokohl, Johannasen and White form our harmonica quintet, which nightly casts its melodious enchantment into the farthest outposts of the camp. (Camp 4 Idaho)

* * *

We read of Al Quine's athletic challenge. Our crew isn't very strong in most events but one member specializes in covering long distances afoot in rather short time. He traveled to Clarkia and back, a distance of 36 miles in 5½ hours. If any of Al Quine's boys would like to match speed and endurance with him, necessary arrangements may be made through me. Fritz Hedman, Manager (Chemical Eradication)

PENALTY ENVELOPES AND RETURN ADDRESSES

Roy Calhoun

It is noted that many of the temporary employees who have penalty envelopes are not strictly complying with regulations approved by the Post Office Department for showing return addresses.

The name of the employee should not appear in the return address, but should be as follows:

"United States Department of Agriculture
Bureau of Plant Industry
Room -- Telephone Building
Albany, New York
Offical Business."

It is believed that the following would not be objectionable for men in the woods when entered in the blank space without erasing or marking out inscription already there:

"Blister Rust Control,
St. Joe National Forest,
Avery, Idaho."

ECHOES FROM CAMP #2

(Tune of: I Know a Girl, I Do)

I

I know a camp, I do
Its name is Number 2
They're the best in the West
They can lick all the rest
And I'm lookin' straight at you.

II

They pull their Ribes out
Without the foreman's shout.
They fish with a line
And a bacon rind
Down on the North Forks route.

III

The boys from everywhere
Come there to get a square,
Fore they've got a cook
That don't need a book
My gosh, but he is there.

(If anyone wishes to hear the encore number, please call around at the camp. We will gladly oblige.)

The people of Bovill are gradually finding out what the chemical crew is doing. When we first landed in the vicinity they heard something of the white pine blister rust and of how the disease spread. From this they got the idea that we spent the day looking for the particular bug or insect that caused the damage. Therefore, gave us the name of "bug-chasers". But after a few days, when they visited the East Fork of the Potlatch River, they found that the vegetation on certain strips was almost completely killed. In this way they got a better idea of our work and next year on visiting these same strips they will find the Ribes nearly a minus quantity.

(Chemical Eradication)

* * *

One of the old timers on seeing a string line thought a city fisherman had been up for the week end and, in order to keep from getting lost, had laid the string to follow back. (Chemical Eradication)

GROWTH AND YIELD STUDIES OF WESTERN WHITE PINE IN RELATION TO BLISTER RUST CONTROL

by

R. H. Weidman, Director,
Northern Rocky Mountain Forest Experiment Station

Perhaps the most important need for further yield study, from the standpoint of blister rust control, deals with the ratio of western white pine to other species in the much mixed stands of this forest type. The point which makes the matter especially urgent to know about is that the proportion of species changes as the stand develops from youth to maturity. The need is to know, for example, if a stand which contains 15 per cent white pine at 20 years of age will have a greater or less percentage of that species at 80,90, or 100 years. It is necessary to have the answer to this question in order to know whether eradication of Ribes will be financially profitable in young stands containing low proportions of white pine.

The common condition in the western white pine type is a mixture of a half-dozen or more species, including white pine, larch, Douglas fir, white fir, Engelmann spruce, hemlock, and cedar. In these stands white pine has a high stumpage value and the other species have little or no value at present. If the ultimate cost of eradication--and several eradications may be necessary in the life of the young stand--will be greater than the stumpage value at maturity of the white pine to be saved, then it would be a mistake to eradicate. Factors which influence the problem in addition to the changing ratio of species are site quality and density of the stands. Naturally the yield to be expected at any given age varies according to whether the site is good, fair, or poor. Yield also varies through a wide range from fully stocked to very open stands.

In order to show the relationship of all this to Ribes eradication, the cost of eradication in several hypothetical stands is here carried forward from youth to maturity. The figures given are based on existing

normal yield tables for three qualities of site, assuming fully stocked stands except as indicated. Four conditions of composition are assumed: 20, 40, 60, and 80 per cent white pine with the remainder of mixed species which have not been differentiated. The standard formula for calculating profits in forestry was used with such modification as was necessary. The rotation used was 100 years and a single eradication was assumed to be done at 20 years of age. An interest rate of 3 per cent was chosen to correspond with that used in damage appraisal calculations of the U. S. Forest Service in Idaho and Montana. Two sets of stumpage prices were used, present and future. The following present prices were taken: $9.00 a M for white pine and -$6.00 (minus) for the secondary species. For future prices the following: $20.00 for white pine and $1.50 for the secondary species. Present tax rates of 10 cents per acre were used up to 80 years, and 6 cents a M for white pine and 1½ cents a M for secondary species were used for the timber after it reached merchantable size. Cost of protection was placed at 10 cents an acre. Cost of eradication was taken from Western White Pine Blister Rust Proceedings for 1925 at $2.22 an acre for dense reproduction, $5.64 for open reproduction, $0.50 for dense mature timber and $2.57 for open mature timber. Using these data, the calculations give the following tabulated results:

Net Profit per Acre at 100 Years

A. Present Stumpage Prices Used			
Per cent of white pine in stand	Site I	Site II	Site III
80	$ 194.84	$115.36	$ 39.10
60	32.63	-2.68	-34.76
40	-129.58	-120.71	-108.62
20	-291.79	-238.75	-182.48

B. Future Stumpage Prices Used			
80	$793.27	$551.05	$ 312.05
60	590.39	403.40	219.64
40	387.51	255.76	127.23
20	184.63	108.12	34.82

The variation in profits is due, of course, to changes in percentage of white pine. The eradication costs and carrying charge are exactly the same in all cases. Under these conditions, using present stumpage prices, it would apparently pay to eradicate Ribes only in case the percentage of white pine present is 56 per cent or over on Site I, 63 per cent on Site II and 69 per cent on Site III. In using the future stumpage prices here assumed, eradication would pay regardless of composition, though the margin of profit would be greatly cut down in the case of low percentages of white pine.

As understocked stands will also have to be dealt with in the work, an example of that is here given in which the stocking is 50 per cent of

normal. Figures for Site II only are given. In this case it would pay to eradicate only if the stands contain 27 per cent or more of white pine.

Net Profit per Acre at 100 Years
Using Future Stumpage Prices
Stand 50% Stocked

Percentage of white pine	Site II
80	$195.18
60	121.35
40	47.53
20	-26.30

There are several matters to be pointed out in connection with the above calculations. One is that the figures show the importance of determining the percentage of white pine in the stand before eradication and also the importance of knowing whether the percentage of this species will increase or decrease as the stand advances in age. What such changes are are not known and no assumptions can therefore be made in this connection. This specifically is the point at which further study is needed.

A point that needs comment in the above calculations is that the carrying costs (taxes and protection) amount to a huge figure by the end of the rotation as compared with the cost of eradication compounded to that time. The eradication costs here used have an end value of $5.32 for the less expensive eradication and $60.02 for the most expensive, whereas the end value of taxes and protection amount to $112.63. Considering the figures as given, the natural conclusion would be that the growing of timber as a private enterprise is not profitable under present conditions except on the best sites, and then only in stands containing a high proportion of white pine. The situation is not as hopeless as this, however, for the reason that any private concern which owns enough timber to stay permanently in business, i.e., to grow each year as much timber as it cuts, would logically not be justified in carrying forward the protection and taxes in this way, but would naturally charge them off currently as a part of the cost of running the business. In doing this it would easily be profitable to eradicate Ribes several times in the life of the stand if necessary. In the case of state and federal owned timber, of course, there are no taxes and the cost of protection is not carried forward as a charge against the final crop.

Another need is to determine the influence, if any, of various compositions of species in the stand upon the total yield per acre. Does a stand with 30 per cent white pine and 70 per cent white fir, hemlock, and cedar have a greater total yield than one in which the ratio, for example, is 70 per cent white pine and 30 per cent other species? There are the combinations of white pine with intolerant associates such as larch and Douglas fir, then there are the combinations of white pine with

more tolerant associates like cedar and hemlock. The Experiment Station already has field data on this problem which, when it is compiled will throw light on this problem. Another need is to know what is the best stocking to produce saw timber. This will be somewhat less than the full, or what we call normal stocking, which produces the maximum cubic volume for a given site and age.

Classification of forest land into good, fair, and poor sites will naturally be necessary in order to state which areas have high productive capacity for white pine to make eradication feasible. Although site classification has not been undertaken on an extensive scale on the National Forests, forest research has developed accepted methods for site classification and this can therefore be carried out in connection with Ribes eradication. Research methods are far enough developed along this line to make this practicable.

"ASK ME ANOTHER"

H. R. Offord (Chemical Eradication)

In the course of our field work we often encounter curious people whose vague nebulistic idea concerning our work calls forth all of our latent histrionic talents when they pop their questions. The idea most prevalent amongst the hoi polloi is essentially "the bug theory". You are doubtless familiar with it in one of its many forms. As might be expected, chemical eradication readily lends itself to the barbs of the curious and the other day I had hurled at me the deadliest one of them all.

I was forced to pull up behind a "cut" and "grader" along the narrow road into our camp at Bovill, and while working around to pass them I was accosted in this wise by the bewhiskered individual on the grader:

"Say! are you doing this blister work up the creek here?"
"Yes", said I.
"Well say! Tell me what do you do with all those strings through the brush". (He had reference to our string lines marking the boundaries of strips.) "I figured out and explained to my partner here that you put some sort of bait on all those lines and then used them to catch the bugs with."

Anxious friends may be relieved to know that the writer is now resting quite easily.

* * *

A good many of you readers have heard of persons, both he's and she's being "under the table" in regards to a few drinks he or she may have partaken of, but how many have heard about a man who was so hoggish at the table that he just naturally slipped under. You haven't heard? Ask Roy Hall. (Camp 2-Idaho)

NETTLES

Johnny Duggan

The scouts are on the hillside,
With viscys tough and brittle,
The flunky's by the kitchen stove
Trying to peel some vittles,
The cook is in the mess tent,
Working o'er his kettles,
While the crews are down in swamp land,
Tugging 'mong the nettles.

The camp boss goes from hill to hill,
And down into each vale
Chatting with a foreman now,
As our lunches all get stale,
We work so well after "taking five"
Each anxious to show his mettle,
There's just one thing can stop us now,
And that's the gol-darn nettles.

Our meal was done, up rose the son,
Of a wealthy man-of-fame,
'Tis for his sake I shan't relate,
The poor boy's christened name,
There's mischief in the air tonight,
As darkness finally settles,
Our friend, the camp-goat has retired,
To his bed containing nettles.

On the thirty-first of every month,
When we finish up the day
There's a happy group at supper time,
Awaiting another month's pay,
In the autumn when the leaves turn brown
And flowers lose their petals,
The crews come in from miles around
On trails among the nettles.

(Idaho #4)

HORNETS

The crew was in action. Each man was carrying a tankful of spray through the dense underbrush that contained a liberal supply of thornbrush and nettles. Suddenly one of the men without saying a word made a jump and dashed madly through the brush. As if by a prearranged signal the rest of the men scattered in all directions.

After five or ten minutes of pleading and entreaty the crew leader was finally able to coax the fellows from their hiding places in the distant corners of the block to resume their march of destruction but to be sure, with a weather eye peeled for hornets nests.

(Chemical Eradication)

THE RECREATIONAL SIDE OF BLISTER RUST WORK

Henry Mechel (California Eradication)

There is, perhaps, no sphere of a young man's activities which begins with so much enthusiasm and which ends with so little, as that sphere known as vacation jobs. The first week or so of a vacation job offers a contrast to school life and for that reason is very enjoyable. Soon, however, monotony destroys the glamour of the work and before long only an empty pocket-book keeps the young man inspired. It is well, then, that there are such things as opening days of school.

Blister rust work, however, seems to be an exception to ordinary vacation jobs. The regular routine duty of the day is interspersed with all sorts of objects and events which give variety to what might otherwise be monotonous labor and make each day just a little different than the one before.

The California Camp this year is located in Tuolumne County on the South Fork of the Stanislaus River--a beautiful clear mountain stream which is the joy of fishermen and the delight of those who love mountain scenery. There are tall stately yellow pines and sugar pines along its banks which cast their long shadows upon the river making it seem particularly cool and refreshing on a hot summer day.

Such is the setting in which California's Blister Rust crews work; and such a setting immediately puts one in just the right disposition and adds the right touch of enthusiasm for a successful summer's work.

The camp life, itself, is most enjoyable. After working hours there is the refreshing swim in the river. Before darkness there are games of horse-shoe or football or baseball; and before daylight has faded there is the blazing campfire with its songs, stories, or bridge tournaments. If one enjoys fishing he may pick up his rod and by taking a few steps begin casting. If one likes to read he can do so in a setting which no library can rival.

Out on the job there are numberless things to divert one--so many, in fact that it often requires real effort to keep one's mind on Ribes. New varieties of wild flowers fascinate those with a liking for botany; interesting rock formations attract the attention of the embryo geologist. The crews frequently stumble on the nests of young quail or grouse, where upon the mother bird becomes very much excited.

Whenever the day gets the least bit monotonous somebody will find a rattlesnake, and for the remainder of the day everyone is alert with searching eyes for more snakes. At such times every twig seems to wiggle and every sound is mistaken for a "rattle".

Every block on which the crews have worked this year has had something

distinctive about it. One was a long distance from camp, another necessitated the carrying of the crew's drinking water. One contained currants that were from eight to ten feet high; another thickets of Manzanita that were as bad as the famous Hell's Half Acre. Some blocks were heavily forested, others had been cut over. Each block has had its own scenic beauties. From one block one could look over ridges of timber to the snow-capped granite peaks of the High Sierras. From another block one could look down the scenic canyon of the Stanislaus River.

Scientific lumbering is being carried on in the same region and there are logging trains, donkey engines, and powerful caterpillar tractors to watch. To one who is accustomed to lumbering the falling of trees and the piling of brush and slash is uninteresting and even boresome; but to one from the city it is interesting and instructive. It demonstrates well the importance of protecting the forests.

The California camp has the added social attraction of being located near two summer resorts--Strawberry and Pinecrest; the latter being on Strawberry Lake. Saturday night there is always a dance and Sunday is taken up with swimming and boating.

Is it any wonder, then, that blister rust control work differs from the ordinary vacation job? Where else can one find recreation so combined with work that the work itself is almost recreational? And where else can one find such a diversity of things to occupy his attention--something new and interesting every hour of the day.

Usually one must consciously face his duties with a philosophy that will find enough recreation in them to make his work pleasing. But blister rust work in California requires no such conscious effort. The crews turn, at times, into male quintets and sing merrily as they work. One crew foreman has turned Ribes eradication into a game and the man who checks the most Ribes on his fellow workers each day wins a Hershey chocolate bar from the man who checks the least. All Ribes seem to be found by such methods for that particular foreman's last block checked one hundred per cent.

It is a happy lot of young men who gather around the campfire when night falls, and it is with regret that they realize that summer is swiftly passing and the best of vacation jobs will soon be completed.

* * *

Five-year-old Bovillite: "Who are those funny looking men?"
His Pal: "Oh, those are the bug eaters."
(Chemical Eradication)

* * *

When we told one of the girls of the town that the only bugs with which we had much to do were hornets and yellow jackets and that we did not spend much time chasing them, she wanted to know if we didn't have to look out for the squirrels, too. (Chemical Eradication)

FIELD BLISTER RUST DEMONSTRATIONS

On Sunday, August 14, all five camps of the experimental Ribes eradication crew in the Coeur d'Alene National Forest, Idaho, in the vicinity of Honeysuckle Ranger Station, assembled at camp two for a field demonstration as well as for athletic competition.

The demonstration was attended by about 125 Ribes pullers, the Spokane office force, foresters, parents and friends of the blister rust force.

Large blister rust displays showing the details of the work and the disease on the pine as well as on Ribes were placed about the camp. Also the common species of Ribes in the vicinity were on display. Much interest was shown in this demonstration.

Athletic sports were carried on throughout the entire day, from nine o'clock in the morning until six at night. Volley ball games, horseshoe matches, swimming, diving, log rolling, broad jumping and high jumping made up the day's sports.

Each camp was out to win its share of the athletic contests, so that all of the events were hotly contested.

The following are the camp winners of the different events:

Event	First	Second	Third
Volley Ball	Camp 3	Camp 4	
50-Yard Swim	Camp 3	Camp 1	Camp 2
75-Yard Swim	Camp 4	Camp 2	Camp 3
Plunge for Distance	Camp 4	Camp 1	Camp 3
Log Rolling	Camp 1	Camp 3	Camp 5
High Jump	Camp 1	Camp 2	Camp 3
Broad Jump	Camp 3	Camp 1	Camp 2
Horse Shoe, doubles	Camp 3	Camp 2	

Summary according to total points won by each camp: Camp 3, 79; Camp 4, 40; Camp 1, 38; Camp 2, 27; Camp 5, 8.

The only disappointment of the day was Frank Patty's failure to get a ducking during the swimming contests.

Considerable interest was manifest in anticipation of the boxing matches, but as one pair of gloves was lacking, the grudge fights were postponed until next year.

The log rolling event furnished the spectators with a great deal of excitement. The contestants were dressed in swimming suits and calked shoes. Who won the event? Well, to tell you the truth, the log did, for the

longest any one contestant stayed on the log was eight seconds.

The spirit with which these contests were entered into was only second to the spirit displayed in devouring the meals of the day. Beside the regular bill of fare there was plenty of pie, cake, cookies and ice cream for all. Each blister ruster received his half of a quart brick of ice cream. The rapidity with which it was devoured gave the weather man no chance to melt it. It was worth the trip to see the office force from Spokane endeavor to devour the same amount of ice cream as one of the hard working Ribes pullers. No wonder some felt overloaded after such an effort.

Blister rust men will look with new interest at the mountains they eradicate after hearing Mr. J. G. McMacken's talk on the geology of the Little North Fork, given that evening. The day ended with singing and banjo duets, after which the men hiked from two to four miles to their respective camps.

From every angle it was a day of great pleasure for all as well as providing a means to distribute some information regarding blister rust. Mr. Strong and his men are to be congratulated on the success of this first blister rust field day.

* * *

Camp 3 had the pleasure of entertaining Miss McWold and Miss Grobe, from the Spokane office, on July 28th. We were glad to learn that the huckleberries which were picked on that day met the unanimous approval of the office, on a following day. The woods have a few delicacies to offer, and huckleberry pie is one. (Camp 3)

* * *

C. O. (Pete) Peterson, while picnicking on Lunch Creek, caught the aroma of petiolare. Upon investigation a large and spreading black currant was found. More power to Pete! We always knew he was a Ribes hound. (Camp 3)

* * *

Camp 3 claims the record for number of Ribes bushes pulled in one day by a five-man crew. The number is 11,251. On ten other occasions a single crew pulled 9,000 or more in a day. The majority of these bushes were 2 to 4 year old seedlings ranging to 3 feet in height and were pulled on cutover areas which were lightly burned after logging.

* * *

EDITORS NOTE

Some material for the second issue of the Summer News Letter was too late for this issue but will be used in later numbers. Copy is largely completed by the 15th of the month. Two more numbers will be issued, one about the 15th of September and one sometime in December. This latter number will give a complete summary of the summer's work.

If for any reason you are not receiving your copy let us know. If you desire an extra copy to send to parents or friends, send us their address and we will forward them.

The summer's work soon will be over. Let us have more contributions for the next two issues. We want interesting observations, experiences, camp yells, camp songs, impressions of the work, etc. Do not hesitate because you do not know whether we will use it or not. Suggestions or criticisms are welcomed. We are good natured and know we are not perfect.

THE LURE OF PHOTOGRAPHY

The lure of photography holds many thrills. Starting out one morning to scout over a block, I took my camera with me to record any good views or things of interest. Getting thru the block to the trail which was the boundary, I was coming along, stepping long and heavily, when suddenly the brush to my left sounded like a herd of elephants was tearing thru it. I immediately thought--Bear! It ran away from me--now's my chance to sneak up and get a picture. So I set my camera and cautiously picked my way thru the brush. After going twenty yards, "it" became frightened and again ran down the hill. Three times I picked my way up as close as possible, the last time I was in open mature timber just above the bushes which hid "it" from view.

Was about sixty feet away when the air was suddenly rent with growls, snarls, barks and yelps. I knew then it was a mother bear and two cubs. Thinking she was coming after me I tore up the hill away from mature timber to pole type so I could climb if I had to. Then I discovered the wonderful size of the huckleberries, so stopped to eat some as I could hear the bears circling around the ridge below me. As I ate, they came around the hill and above me. I heard them rip the bark from a snag and looked up just in time to see a sixty-foot snag fall. I decided when bears start pushing trees over at you, it's time to leave, so went to camp.

(A. H. Glasgow) (Camp I)

3

SUMMER

BLISTER RUST NEWS LETTER

No. 3

U. S. Department of Agriculture
Western Office of Blister Rust Control
Spokane, Washington.

ERADICATION -IDAHO - 1927

C. C. Strong

September 22 marked the close of the most successful eradication season ever experienced in north Idaho. Except for heavy rains which began about September 1 and continued intermittently until September 14, the weather was ideal thruout the season. Practically no interruption by fires permitted nearly all the efforts of the eradication force to go to the job at hand. As a result it is felt that the results obtained are more truly representative of normal work by the eradication crews than is the work of any past season. The total progress for the season is measured in the following table;

Experimental Ribes Eradication
Coeur d'Alene National Forest, Idaho
Season 1927.

Type	Acreage	Percent of Total Acreage	Ribes Pulled				Ribes per Acre
			R. lacustre	R. visco.	G. inermis	Total	
Dense Mature	2,468.7	14.61	44,200	2,996	8	47,204	19.1
Open Mature	6,252.0	37.00	277,651	32,847	248	310,746	49.7
Dense Pole	1,308.3	7.74	36,273	17,932	23	54,228	41.4
Open Pole	1,190.8	7.05	27,516	4,587	--	32,103	27.0
Dense Reprod.	1,447.8	8.57	37,506	553	--	38,059	26.3
Open Reprod.	616.3	3.65	120,220	16,589	49	136,858	222.1
Cutover	2,571.3	15.21	591,243	243,695	2,825	837,763	325.8
Stream	1,027.0	6.08	435,684	2,289	119,782	557,755	543.0
Swamp	15.5	0.09	845		49,185	50,030	3227.7
Total	16,897.7	100.0	1,571,138	321,488	172,120	2,064,746	122.2

Experiments and data taken on the work form the bases for later solution of some of the problems which have been most perplexing in the past. Thus the analyses of these data will bring forth much interesting and helpful information for future use.

Perhaps the most important new method being experimented with was the method of doing pre-eradication work on the area proposed for next season's work. The necessity for this method arose when the strip method (used during 1927 season) proved to be too cumbersome and expensive.

Pre-eradication is extensive reconnaissance for the purpose of estimating eradication costs for a given area and planning organization and size of unit needed to cover this given area in a given time. The old method of classifying according to eradication types is not sufficient since cost of covering given types with given numbers of Ribes per acre

in different regions varies out of all bounds due to influence of other factors.

The new method by which an average crew of 5 most experienced men available were able to cover an area of approximately 12,000 acres in about ten days, consists of two operations. The area is very accurately mapped by a triangulation system, using plane tables, alidades, Forest Service Compasses and field glasses. (Accurate location of triangulation points must be known, of course). Eradication types are mapped in by means of the plane table and glasses. It might be stated here that type boundaries are usually very distinct. In addition to this the area is mapped (on the same map) into eradication classes. The classes are:

1. Extensive scout area.
2. Intensive scout area.
3. Extensive crew work.
4. Intensive crew work.
5. Area suited best for chemical work.

In classifying areas particular attention is paid to historical features of the area. Single and double burns can often be recognized from the distance. Density of stand, age of stand, topography, rock outcrops, mature trees surviving burns, swampy conditions, streams, brush, timber types and species, etc. show up well. Experience on eradication enable men to make tentative classification of the area by the above method.

The second operation can be called a "checkup" by actually going over the various types and classes to verify or correct original classification. In this operation (which requires at least 2/3 of the total time for the entire operation) men can work singly orienting themselves always by known points such as section corners, ½ corners, streams, hills, peaks, rock slides, etc. and by pacing and compassing where necessary.

The area for working next season, centering around the Marie Creek drainage and immediately north of Copper Mountain Lookout swings from the general northern exposure of a majority 1927 area to a general southerly exposure. Likewise the Ribes conditions seem to vary greatly (probably not over 50 per acre) from those of the 1927 areas. Ribes lacustre, which was the predominating species in 1927 will still be the predominant species. However, the "optimum lacustre site" which characterized the 1927 area will not hold as the proportion between lacustre and viscosissimum will vary far less. An average of the two season's work should give a very good idea of the cost of protection on the Coeur d'Alene Forest.

* * *

Deer are getting so thick in Oregon that they chase automobiles off the highway. At any rate, Goodding had to run off the pavement below Drain to keep from hitting a doe parked in the exact middle of the road.

THE GOATMEN'S VESPERS

Henry F. DeBoest - Reconnaissance, Idaho.

Lord God of Hosts be with us yet
Lest we forget, Lest we forget,
To take our lunch with us along
As we start out four goatmen strong.

And while you're at it, God, old man,
Wake up some Ribes if you can
That we are coming let them know,
Although our progress is but slow.

With forward steps we onward forge
Upon their deep sequestered gorge
Their shiny heads look up askance
With fear reflecting our advance.

But from us they need not hide
We'll leave them there in peace to bide.
Their census only we're to make,
Let the boys with the hoe their good live take.

Oh yes, and, God, before we go
Another thing that makes us slow
Is Devils Club in patches big
That neath our tin pants deeply dig.

And after you have finished that,
You might hand out some land that's flat,
A rainy day or so thrown in,
That we may patch our trousers thin.

And please give us some section lines,
Don't hide them like you do gold mines.
The other day we lost our way,
And the boss he docked us a whole day's pay.

And please make these last days go fast.
We'll be right glad as they roll past.
With thanks to you and your large staff
Please give us this and then add half

For things that might have slipped our mind
We're sure your 'fficiency man will find.
That's all for now from our glib pen
With many thanks we give Amen.

EXPERIMENTAL RIBES ERADICATION IN CALIFORNIA

W. V. Benedict

The 1927 eradication season in California was completed on August 13. Because of late spring snows the work was somewhat hampered during May. However, the much touted California sun beat down unremittently thoughout June, July and August enabling the boys to get in an unbroken period of Ribes digging. No time was lost as the result of fire during the entire season.

Although all of the outlined areas were not completed because of unexpectedly numerous Ribes on some of the cutover land, the season was a real success. The following table gives an approximate summary of the season's work:

Eradication Type	Acres	Ribes			Ribes per Acre
		G. roezli	R. nevadense	Total	
Sugar pine-yellow pine mature	990.4	6264	401	6665	6.7
" " " "cutover	1133.3	34059	936	34995	30.8
" " fir mature	353.9	12036	1445	13481	38.1
" " fir cut-over	908.5	94524	6768	101292	111.4
Stream-mature type	74.6	2121	3871	5992	80.3
" cutover "	75.7	16220	32395	48615	642.2
Total	3536.4	165,224	45,816	211,040	59.68

Last year 3,134 acres were eradicated with an average of 59 Ribes per acre.

A POINT OF VIEW

Miss Millick-Stenographer

Field Day was such an event in the life of we girls in the office that I feel I just must express how thrilling it was, I really must. Even after this long time I remember it all so well--just as though it was yesterday, I really do. It started with such a wonderful ride thru the forest, and there were so many trees, the whole forest was full of trees--one tree right after another, and there were perfectly gorgeous ones that went away up in the air so high it almost cracked your neck when you tried to see to the top. And some had green stuff hanging on their trunks that waved around so cute, it looked just like little georgette veils. No, georgette would be too stiff, it was more like chiffon.

When we got into the camp after our ride the events had already started and as we came up we saw some men trying to hit a peg with some horse shoes. But first I must speak of a terrible bridge we had to cross on the way to the camp. It was made of just one little thin board that sagged--think of it! And it made me awful dizzy when I got out in the middle of it and looked down on the rushing waters below. But I suppose

men don't mind things like that. They are so brave.

Well, these men were throwing horseshoes and when the horseshoes got close to the peg they sat right down in the dust--the men, I mean--and laid a little stick on the ground. I couldn't make out what they were doing with it, but it must have been rather important because sometimes they even got mad about it--the stick, I mean. Aren't men funny?

But we couldn't stop long to see the horseshoes because they were playing volley ball up further and that was ever so thrilling. There was a big tall man playing close to the net and every time the other side got the ball started over, he just reached up his hand and pushed it right back. He was so good looking we wanted his side to win, but it didn't, they told us. It was a shame, because he worked so hard and his face got all sweaty and his hands were dirty from pushing the ball back so much, and his underwear was all torn. Oh, and when the winning team stood up to have their pictures taken, somebody out in the crowd yelled to one of them to look pleasant or he wouldn't lend him his underwear any more. Do you suppose they really wore each other's underwear?

After the volley ball games they brought a big thick rope and everybody stood up and held it in a ring--that is, everybody but we girls, and they yelled, Down in front! and everybody got down so we could see--now, wasn't that nice? And then a fellow with boxing gloves came and sat down in the ring. He had on a heavy coat and it was awful hot, so another fellow went in and fanned him with a towel--or maybe he rubbed him, I forget which. Anyway, I was just terribly thrilled,it was so real. We didn't get to see any fight, however, because the other fellow forgot to bring his gloves. After that we ate dinner and there was the nicest little flunky and the best salad dressing I ever tasted.

And then I think we went down and sat on a bridge--not the single board one that sagged, but another--or maybe it was a dam--yes, I believe I heard someone call it a dam. Anyway, we sat on it and from there we saw the water sports. One man who got in the water had a lovely marcel, almost as nice as Mr. Riley's. And Mr. Patty was so brave! He leaped all around on the end of a big board out in the water with his clothes on and his shoes, too, and didn't fall in.

We couldn't wait to see much of the jumping because it was getting quite late but I know it was thrilling because some of the men had regular track outfits with pictures on the front. I think they were eagles--the pictures, I mean.

And during the drive home Mr. Klatt told us a deer story--or maybe it was a bear story, I don't quite remember, about him and Mr.Calhoun. Altogether we had a perfectly wonderful time and we are just awfully grateful to Mr. Strong for asking us to come and we hope he will ask us next year again.

THE IDAHO BLISTER RUST QUARANTINE

C. R. Stillinger

On August 4, 1927, the Commissioner of Agriculture of Idaho issued Quarantine No.10 of the State Department of Agriculture declaring a blister rust control area in Idaho. The area quarantined includes all of the counties of Boundry, Bonner, Kootenai, Shoshone, Benewah; all of Latah except the southwest quarter of the county; the northeast corner of NezPerce County and the northeast quarter of Idaho County.

The quarantine forbids the planting, propagation, sale, transportation or possession of any currants or gooseberries in this area. Further, no currants or gooseberries can be transported into this area from any point outside of this area.

In this connection attention should be called to the fact that it is now necessary to obtain a permit from an inspector of the Federal Horticultural Board before any currants or gooseberries can be shipped in to any of the remainder of the state. Applications for permits should be sent to the State Department of Agriculture, Boise, Idaho. A federal inspector will be stationed there. This federal inspector is generally also the chief state inspector. Federal Blister Rust Quarantine No.63 makes the acquisition of a permit necessary for the shipment of any currants or gooseberries interstate into a state which has established a blister rust control area. No permits will be issued for shipment of currants and gooseberries into any control area.

The object of this quarantine is to prevent the distribution of blister rust by means of plant shipments. A control area may be declared limiting an area to the growing of currants and gooseberries and excluding white pine or vice versa. Idaho has declared that northern Idaho shall be a white pine growing area and that all currants and gooseberries shall be gradually eliminated from this area. To accomplish this, two steps are being taken, (1) the further planting of these plants is forbidden (2) white pine areas are being systematically worked by crews which pull out all of the currants and gooseberries that are found. Thus far about 35,000 acres of white pine in northern Idaho have been worked.

INFECTION STUDIES IN WASHINGTON

Infection studies in western Washington have been carried on since late in July. Scouting has been done in nearly all of the counties west of the Cascades. Regarding the general condition of infection, Mr. Putnam reports as follows:

"There was a widespread infection chiefly from two well established pine infection centers; (1) Kitsap County in the general vicinity of Bremerton; and (2) Kendall-Maple Falls area in Whatcom County;and the

Upper Skagit River in Skagit County. The pine infection near Mt. St. Helens in Skamania County is a young infection. Cankers younger than fruiting are very numerous and in another year or two will be a nearby source of aecia to establish infection in the Wind River region of Washington and in Oregon.

"Infection on Ribes was very spotted and scattering, with little evidence of much uredinial intensification, except in the immediate vicinity of infected pines."

The two following tables give a summary of the findings:

County	Pine Infection				Ribes Infection			
	No. Locations Inspected		Trees		No. Locations Inspected		Ribes	
	Healthy	Inf.	Healthy	Inf.	Healthy	Inf.	Healthy	Inf.
Chelan	3	0	118	0	4	0	64	0
Clallam	17	9	314	28	39	17	993	66
Cowlitz	1	0	4	0	18	2	684	3
Grays Hbr.	17	1	452	1	28	2	771	7
Island	1	0	30	0	0	0	0	0
Jefferson	10	3	329	3	18	11	1,070	56
King	4	0	203	0	19	6	1,372	10
Kittitas	4	0	116	0	2	0	85	0
Lewis	13	0	1,054	0	40	5	1,103	33
Mason	10	1	582	4	14	10	724	23
Pierce	19	0	394	0	26	3	790	4
Skagit	5	6	556	10	3	17	383	42
Skamania	8	1	1,394	14	5	1	181	109
Snohomish	13	1	364	3	26	17	3,355	34
Thurston	0	0	0	0	1	1	44	25
Whatcom	10	17	1,589	145	10	31	903	109
Kitsap	11	8	839	77	7	18	268	103
Clarke	1	0	10	0	4	0	157	15
Total	147	46	8,348	284	264	141	12,947	639

RIBES INFECTION BY SPECIES

Species	Total Inspected	No. Healthy	No. Infected	Percent Bushes Infected
R. nigrum	61	42	19	31.4
R. bracteosum	11,535	11,102	433	3.75
R. laxiflorum	293	191	102	41.0
G. divaricata	361	324	37	10.3
R. sanguineum	529	498	31	5.9
R. lacustre	637	623	14	2.2
G. lobbii	54	53	1	1.86
R. vulgare	19	17	2	1.06
R. viscosissimum	62	62	0	0.0
R. acerifolium	35	35	0	0.0
Total	13,586	12,947	639	4.93

BLISTER RUST CAMP PROVERBS AMENDED

Anderson and Spurlock - California

Poor trails to camps and eradication sites mean fewer visits by the boss.

Slippery logs across streams used day after day for crossings mean an occasional healthful bath.

Clean socks mean healthy feet.

A stitch in time saves--embarrassment.

Time spent in preparing for a good sleep spells a late start the next day.

ERADICATING CULTIVATED BLACK CURRANTS UNDER DIFFICULTIES

B. A. Ganoung

While working in Kittitas County Mr. Macomber and myself ran into a bunch of 40 R. nigrum, growing on the bank of and in a slough. In three and one-half hours all the bushes on the bank were dug out, when, lo and behold, Macomber discovered a bush growing among the rushes in the slough. A coin was flipped to see who would get the bush. Aw h--- you can guess who went after it. I took off my shoes and rolled up my pants to find that I went down to my knees in mud. The next bright thought was our bathing suits which we had in the car. Macomber then decided to give me a lift. In all, we took five bushes out of that slough. It was necessary to go about a foot under the water for the crowns of these babies but we got them. Moral: Please tell your friends, if you have any, not to plant their R. nigrum in a slough. It's too tough on the guy who digs them out.

REQUIREMENTS FOR AN IDEAL CULTIVATED BLACK CURRANT ERADICATOR

Anderson and Spurlock - California

1.--A pleasing personality. In other words, a fellow who can sympathize with equal facility with the small town backyard gardener and the big rancher.

2.--A pocketful of assorted cigars for the fellows who are addicted to the weed.

3.--A conversational knowledge of Italian (euphemistic for Dago), Portuguese, Dutch, English, Mexican, Spanish, Greek, and Swedish.

4.--A sleuthing instinct.

5.--A nose for ye black currant odor, not to be confused with the odor of socks.

6.--A pair of specks.

PRE-ERADICATION IN CALIFORNIA

W. V. Benedict

During the latter part of August the pre-eradication and scouting work for the next season was done. The area on which experimental Ribes eradication work is to be conducted in 1928 lies in the vicinity of Dorrington on the drainage of the North Fork of the Stanislaus River. An all aged class stand of sugar pine - yellow pine and sugar pine - fir occurs on the area. There are no cut-over lands in the locality. For this reason the Ribes will be fewer and working conditions easier than experienced the two past seasons around Strawberry.

The ridges, streams, roads and trails, as well as the various eradication types have been traversed on some 12,000 acres of sugar pine type. A staff compass, trailer tape and hand level was used in this work. From these data a working plan map will be constructed for use in planning and carrying on the operation next season.

WHAT ARE THE PRIVATE OWNERS DOING ABOUT BLISTER RUST CONTROL?

J. L. Bedwell

Each of the five timber protective associations in north Idaho have cooperated with this office on a dollar for dollar basis since 1924. This cooperation consists in the contribution on a fifty-fifty basis toward the salary and expenses of one permanent man and his temporary assistants on each association. From the beginning of this cooperation in 1924 and continuing to date this work has been concentrated on educational work and the collection of data concerning the white pine and Ribes on association lands.

Data relative to location, quality and area of the white pine and the associated Ribes are obtained through the examination of records on file at association and timber company offices or by field examination or by a combination of both.

During this summer, reconnaissance work was done on private lands on all the north Idaho associations and on the Northeastern Washington Association as follows:

Name of Association	No. of Sections Worked
N. E. Washington	369
Pend Oreille	86
Priest Lake	205
Potlatch	98
Clearwater	92
Coeur d'Alene	76
Total	926

A TRIP TO THE OLD CAMPING GROUNDS

Ernest E. Hubert
Cooperative Agent, School of Forestry, U. of Idaho

It was with considerable pleasure that I undertook the trip into the Little North Fork region of the Coeur d'Alene River on July 18 for I looked forward to seeing the old camping grounds at Honeysuckle where I had a crew working on the white pine rot studies in 1916 and the areas on Burnt Cabin Creek where I worked with the white pine stem analysis crews in 1912. I found the Honeysuckle area greatly changed and the most welcome one was the easy means of transportation over a good highway which contrasted with the back-packing trail over "the hump" in the earlier days. Burnt Cabin Creek showed the greatest change. Here, where once we camped in the shade of a dense forest, there was now much sunlight due to the logging and clearing operations. The whistle of the logging engine over the ridge also startled me and indicated the progress that had been made since 1912.

The main purpose of the trip was to study from various angles the areas undergoing eradication with the view of gaining ecological data and so Strong's camps were the main objectives. On catching the blister rust truck at Coeur d'Alene, I found friend Stillinger neatly packed in with camera cases, tripods, focusing cloths, duffle bags and miscellaneous "grub" for the camps. Roy was also bound for the same region and we found mutual interests in photography, conks, and blister rust studies in general.

The various areas were visited near Camps 1 and 3 where crews were in operation and a good idea of the methods used was obtained. Let me say here that anyone not realizing what a task is involved in the eradication of Ribes from certain areas on the Coeur d'Alene should not fail to visit crews in operation and note the thousands of Ribes plants encountered and pulled in a day's work. Our old friend "Visco" was in full evidence on cut-over and burned-over areas and, on eradicated strips, the pulled young plants at the rate of about 9000 per acre, festooned all the stumps, windfalls and brush heaps. On certain areas where the brush had been burned in the autumn of 1926 large numbers of "Visco" seedlings of this year's germination appeared along the margins and scattered throughout the burned spots. In some places as high as forty or more seedlings to the square foot were counted.

A trip was made over the Forest Service trail to the top of Monument Mountain, elevation 5050 feet. On the way up many side trips were made to examine cut-over, burned, or mature timber areas. It is surprising what elevation will do for you. I started the morning as a casualty being fit only for the sick bed but after deciding to join the party and climbing all day I returned in restored health. On such a trip where frequent stops for "wind" are essential, it is of extreme advantage to have a photographic turn of mind. Whenever Stillinger commenced wheezing, he cocked his eye up into the tall trees, remarked that this would make a dandy picture, and proceeded to recover breath for the next full hour, while

maneuvering a kodakic assault on the unsuspecting timber. You can't imagine how much stealth (and time) is needed to creep up and bag a first-class view.

As we followed the trail upward many R. viscosissimum seedlings were observed growing in the "cave-in" areas on the upper side of the trail. Just above the trail in the fairly dense stand numerous veteran bushes of this currant were found growing in the small openings. At other points along the trail a scarcity or the absence of Ribes plants was very noticeable. The causes for the variations remain to be worked out. It may be that the history of the stand revealing successive burns over the same area may give us a clue to the absence of Ribes on areas that have been recently logged and the brush burned.

On the cut-over areas where the brush had been burned in the spring of 1927 there were no seedlings of R. viscosissimum on the burned spots on July 18. Skid trails and other spots where the duff had been removed showed the usual number of Ribes plants on some of the areas while others again were comparatively free of them.

Very good data were obtained on the characteristics of coniferous seedlings of this year's germination. The data were used in revising the preliminary key to conifer seedlings and the new key was prepared and sent out for use of the ecology crews. Any new data on coniferous seedlings useful in identification will be gladly received since little printed material is available.

The crews in the Coeur d'Alene are doing excellent work and the good spirit in the camps is infectious. Volley ball, horse-shoe pitching and other sports are in full swing at the different camps and talk of a big field meet is in the air. I was disappointed to find the chipmunks at Camp had escaped their cage. I had designs on utilizing them in ecological studies to discover whether or not they were partial to Ribes fruits as a diet. If the chipmunks and smaller rodents grind up the seeds as they eat the fruits then their part as seed distributors is nil.

The quality and amount of work that is being done this year and the general spirit of the organization is encouraging and crystalizes the conviction that blister rust control is a practical measure.

NO BLISTER RUST ON (OR IN) THE GLACIERS

As told by the one who stayed on top

E. L. Joy

As we have not tangled with bear (or deer) as some of our brother Rusters have, we wish to submit an account of what we did for excitement this summer. The "we", Herb Taylor and Ed. Joy, think this rather an unusual affair (ask Taylor).

While doing a bit of scouting in the White River section of the

Rainier National Park, we took a trip to the land of Pinus albicaulis. This trip as planned was to take us to Yakima Park, a flower laden meadow and then over the mountains to Glacier Basin, a few miles above our camp--about 8 miles in all. We reached Yakima Park so quickly that we were sure we could hike miles more and get into the Mystic Lake region, at that time the location of the Majama mountaineers summer camp. The park ranger told us it was only six miles farther, the trail was good, and we could take a short cut back across Winthrop Glacier. This sounded simple--thus the reason for this story.

We scouted along the way and arrived at Mystic Lake about 3 o'clock. From there we went around a rocky peak in order to reach aforementioned glacier. Not being mountaineers, we decided the snow field half way up the glacier looked easier to cross than the rugged ice portion, we started out. It was tough going, we found out, so were just nicely on the field when old Sol dropped behind the mountain. About this time we found we were in a maze of ice cracks, known to the mountaineer as crevasses and not exactly a pleasant bit of scenery to be mixed up in. Therefore, the travel slowed up considerably. A fairly clear stretch of snow loomed up ahead of us so we breathed a deep breath for a change, but not for long, for suddenly the snow gave way under my right foot and I yelled, "Watch out". By extending my arms to the side and with the aid of the pack sack on my back, I stuck there. At the same time I heard a dull thud below and knew all was not well. I called, "Herb", but got no reply and then again, this time receiving a faint reply from the regions below. (And believe me, it was faint.) After pulling out of my trap I crawled to the opening Herb had gone thru and there on a ledge of ice about 25 feet below, the only landing place in sight, packed in snow, lay the Blister Ruster, not exactly looking his best. "Lucky" Taylor had chosen for his stopping place this particular ice cake because it was the only one. After a short discussion of the situation and a declaration from Taylor that there was no steam heat below, the jack knife was put to work. I cleared the snow back to the wall and Taylor cut three steps in the ice, bringing himself high enough to reach the pack sack I lowered to him. With this as an aid, he came over the top, declaring the weather much more agreeable on top. A few bruises, loss of some perfectly good wind, a gash over one eye, and a raw cheek served as a reminder of the experience for quite a while. The chief loss was a 99-cent army hat, a relic from Camp Lewis. This was sighted far below, but Taylor decided he didn't need a hat anyway.

Since the incident we have decided we are sure of several things about glaciers. Blister Rust does not occur in crevasses; Blister Rusters have no business on glaciers; and the distance to bottom from the ice ledge must be considerable for we could hear the water below but couldn't see it.

* * *

Otto at the filling station (for loading spray tanks.)

"I discovered a peculiar phenomena this morning. My spray pump hasn't leaked a drop." (Chemical Eradication)

BLACK CURRANT EVENTS

R. Bert Fehren - Oregon

I may be only a harmless nursery inspector and black currant eradicator, but my vocation is as changeable as a chameleon in the eyes of those imaginative individuals who catch a furtive glimpse of my State of Oregon inspector's badge. On being taken for a prohibition agent, I no longer experience any unusual reaction, except to glance quickly around for firearms. As an auto camp inspector, bug catcher, book agent, insurance salesman, and secret service man, as all of these, I seem to pass very nicely. But these are mere inconsequential bits of nothingness compared to my latest imagined vocation. I must tell you about it.

There were black currants on the horizon--eighteen of them in a front yard. They were likely looking bushes, too, for it would likely take Stephens, my colleague, and me some time go get them out. With the enthusiasm of a drunken sailor who has found another bottle of snake poison, we approached the door and knocked. A scurrying of skirts and the sight of an elderly lady dashing into a room and slamming the door greeted our attempts at recognition, so we proceeded to find a shovel and do our do. In the meantime, her son came home, and, in answer to our questions, informed us that his mother had mistaken us for a couple of ministers coming to call. Now in all my short life I have never before been taken for a preacher. It had me worried, especially due to the fact that I have had many a mirror inform me that my appearance was not particularly pious in nature.

Now while we are dealing with black currants, I want to place my application for the solid gold gooseberry, in the Ribes destroying contest. Five hundred in five minutes is my latest accomplishment. Of course I do not want to appear to brag. Far removed would it be from me to do such an asinine thing, but I do want to lay my case. Now, I might go into great detail as to how I romped rapidly down row after row with Paul Bunyan rapidity, darkening the sky with Ribes, but I cant do that. I must confess, they were all seedlings which I discovered in a seed flat in a prominent Portland nursery.

If one is to satisfy everybody in this nursery inspection and black currant game, he must certainly be a versatile and variously talented individual. Let me enumerate just a few of the qualifications (the most of which I fail to possess). The man must be a diplomat and a statesman, excelling in oratory and argumentation. He must be a forester, a horticulturalist, an agriculturalist, an agronomist, a botanist, a chemist, a physicist, a biologist, an entomologist, and most every other kind of an "ist" except a Methodist, and I happen to be one of that kind, a poor one. He should have an understanding of current events, finance, commerce, philosophy, psychology, sociology, legislation, local scandal, and above all, a patient,willing soul that will listen well without seeing red. If you do not believe it,

just try your hand and tongue sometime at convincing a bearded backwoodsman that the little fungus thing which lives on currants and gooseberry leaves can kill his pine without hurting his apples. It is a good game when you have about four hours to play it. Try it while you are resting.

BLACK CURRANT ERADICATION

Idaho: Cultivated black currant eradication in southern Idaho resulted in the completion of this work for the state about August 15. For the balance of the month rechecking was carried on in counties which had been previously worked. The results for the month of August are as follows:

County	Plantings Eradicated	Plants Eradicated
Bannock	3	23
Bear Lake	4	35
Franklin	65	551
Fremont	20	126
Oneida	82	755
Total	174	1490

Washington: Cultivated black currant eradication was conducted in Chelan and Kittitas counties during August. A total of 36 plantings representing 141 bushes were eradicated. The report states that very good cooperation was given us by all newspapers and field contacts indicated that 75% of the people had read articles run by the newspapers.

California: During the month 24 plantings consisting of 100 bushes were eradicated. A recheck of 72 places in Siskiyou and Humbolt counties showed 8 cases of resprouting.

Rare Ribes

L. N. Goodding

Don't be too sure they are rare. A couple of years ago we considered *Grossularia klamathensis*, *G. binominata*, *G. Marshallii* and *Ribes erythrocarpum* rare. Now we find them in such abundance that in certain sections we will have to call in Offord with his chemical crew when we wish them eradicated. Rare? There aint no such animal as a rare Ribes when you get where he really grows.

* * *

If you think there are Ribes in Idaho please ask your four piece orchestra to set this southern Oregon line to music: *Grossularia klamathensis*, *binominata*, *cruenta*, *lobbii*, *marshallii*, *veluntina*, *Ribes viscosissimum*, *sanguineum*, *lacustre*, *montigenium*, *erythrocarpum*, *cereum*. I suppose there are a few rare ones to make up the chorus which we haven't run across.

I WONDER WHY THE RIBES DIE

Chemical Eradication

The spray is laid on leaf and stem
With loving care we gild the hem
Of dancing leaves with gems
Of that--that ambrosia.

Chorus--I wonder----------die? Repeat four times.

Too soon the little life is spent
The trusting heart with pain is rent
To see the leaves so brown
Beneath its drooping stems.

Chorus----------

Rough winter sheds his cloak of gray
And gentle spring begins to play
Capricious pranks with dead
And living Ribes plants.

Chorus----------

Some Ribes raise their heads as bold
As brave Horatius did of old
And shout - "You shall not pass!"
To hordes of rampant ions.

Chorus----------

While right beside the tale just told
Lies brother Ribes stretched so cold
That sugars and the mineral salts
Have ceased to circulate.

Chorus----------

Perchance some scientific tact
Will ring the curtain on the act
And soothe a mind whose sleep
Is punctured by the phrase
I wonder why the Ribes die.

* * *

The crews have been pulling some large Ribes this month. When "Hell's Four Hundred" was worked, an inermis twenty-one feet and nine inches and a lacustre seventeen feet long were pulled. I also heard reports shortly afterwards of viscosissimums being found on Block No. 1 which ranged from twenty-five to seventy-five feet in height and possessed root systems which would compare favorably with those of the ancient cedars of Lebanon. (Camp 4 - Idaho)

EXTENSIVE SPREAD OF BLISTER RUST THIS SEASON

Scouting for the disease which has been carried on during the summer and fall has showed 1927 to be a very favorable year for the spread of the rust. Long distance spread generally occurs in favorable years, those characterized by moist springs, which favor the infection of currant and gooseberry bushes, and summer or early fall rains, which help to intensify the rust on these or nearby bushes, and to spread it to pines.

Prior to this season, the rust had been found in considerable profusion in the Puget Sound region of Washington, in western British Columbia and in the Revelstoke to Nelson region of eastern British Columbia. In 1923 scattered infections were found on currants and gooseberries in the Okanogan region of Washington, and in 1925 in northwestern Oregon.

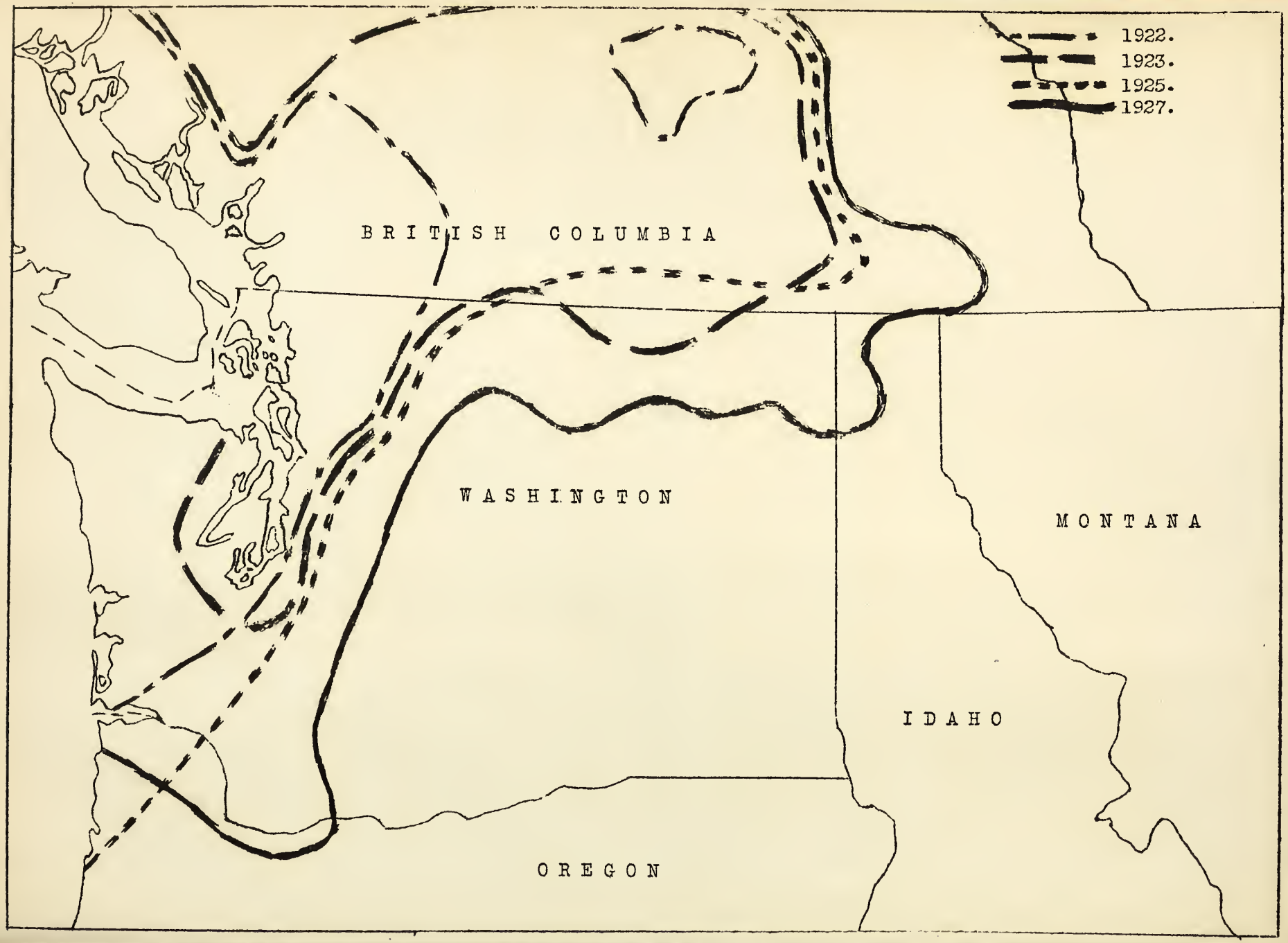
Because of the favorable nature of this season, an intensive scouting program was carried on. The most important results are as follows:

1. The rust has spread south from its previously known range near Nelson, British Columbia, into northern Idaho (infection found on wild gooseberries near Priest River) and northeastern Washington (eleven infections on wild currants and gooseberries found between Okanogan and Cusick), and southeast from Nelson to Moyie, British Columbia, 20 miles north of the Montana border.

2. The rust is firmly established on white pines in western Washington. Two extensive and well developed centers of pine infection exist in Whatcom and Kitsap counties. The farthest south pine infection thus far discovered is on the Columbia National Forest, just north of Mt. St. Helens.

3. The rust is rapidly spreading into Oregon. Infected currants and gooseberries have thus far been found in eight localities in Hood River, Multnomah and Columbia counties.

This scouting plainly shows that the rust is rapidly spreading toward the white pine stands of north Idaho, northeastern Washington and northwestern Montana, and also toward the sugar pine stands of southern Oregon and California.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1923.
1925.
1927.
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